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The PHOTOFACT Servicer

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Resume of Sylvania Material Available to the Service Dealer

In these competitive times, it is important that the service technician use every means at his command to improve his service, to satisfy his customers, to maintain accurate business records, and to build his business. There are several promotional programs available, offered by organizations with a wide background of experience.

One of the outstanding programs is that offered by Sylvania through their distributors. Because it may have been some time since this program was brought to your attention, we are reviewing here the various items available through your Sylvania distributor. He can show you samples of most of the material, can give you the details and prices where there is a charge. As you know, Sylvania advertises on a national scale at the consumer level, and with the aid of the material outlined, a service technician can be materially aided in the conduct of his business.

An excellent booklet, Publication No. 750, entitled "Multiplying Pennies," describes in detail all of the material which falls into the following classifications:

Store Identification, which includes decals, window displays, service banners, electric signs, metal signs, a thermometer, and an electric clock.

Sales Aids, which include direct mail postcards, newspaper mats, customer booklets (containing valuable maintenance information), tube stickers, service stickers, door-knob hangers, telephone blotters, book matches and program reminders.

Under Business and Shop Aids are business record books, shop record cards, service forms, letterheads, bill heads, business cards (all can be imprinted and are available in various quantities).

There are Work Aids such as face protector, test prod ohmmeter, two different wrench kits, service garments (including jackets, coats, cape and aprons), metal tool kits, parts drawers, metal file cabinets, service kits and "lock-in" tube pullers.

In the category of Technical Aids, there is a looseleaf tube manual, a series of Service Hints, Tube Hints, Circuit Hints, and Equipment Hints booklets; Television Tube Complement Book, Television Service Reference book, Tube Characteristics booklets, Model Service Shop booklet, Sylvania News, Radio Instruction Course brochures, Wall Charts and other instructional material.

Of the technical books, the outstanding ones are:

The looseleaf tube manual. This not only gives tube characteristics, but also circuitry, definition of terms, dimensional characteristics and other pertinent data.

The publication entitled "Servicing Television Receivers" is a handy pocket size book, giving many of the characteristic failures in television receivers with an explanation of the various troubles encountered.

There is a tube substitution manual which gives a quick reference for substitutions of critical radio and television tubes.

Two other publications are "How to Service Radios with an Oscilloscope" and "Servicing Radio and Television with a Vacuum Tube Voltmeter."

Another publication is entitled "Forty Uses for Germanium Diodes," is of particular interest to the constructor and hobbyist and contains valuable information for the service technician. The same is true of the book entitled "Electronic Shortcuts for Hobbyists."

The regular issue of Sylvania News is of especial interest in maintaining an up-to-date file of television service techniques and service problems. This continuing publication certainly should make a worthwhile addition to the library of every service shop.

Your Sylvania distributor can help you in laying out an advertising program and in obtaining the material to make it successful. He can also supply the technical data with which to supplement your service literature file.

This remainder of this issue of the Photofact "Servicer" is devoted to a cross-reference listing of capacitor catalog numbers of the Sprague Products Company. The charts are divided into various capacitor styles and show the old catalog number, the new catalog number and the ratings. With this information, you will be able to order the correct capacitor number when using Photofact folders printed previous to the introduction of the new numbering system. We wish to thank the Sprague Products Company for making this material available.

Cross Reference of Sprague Old to New Catalog Numbers

TYPE TM TELECAPS®—Old to new catalog numbers

Old Cat. No.	New Cat. No.	Mfd. @ WVDC
TM-1	6TM-P1	.1@600
TM-1-2	2TM-P1	.1@200
TM-1-4	4TM-P1	.1@400
TM-2	6TM-P25	.25@600
TM-2-2	2TM-P25	.25@200
TM-2-4	4TM-P25	.25@400
TM-5-2	2TM-P5	.5@200
TM-5-4	4TM-P5	.5@400
TM-10-2	2TM-M1	1.0@200
TM-11	6TM-S1	.01@600
TM-11-4	4TM-S1	.01@400
TM-12	6TM-S2	.02@600
TM-12-2	2TM-S2	.02@200
TM-12-4	4TM-S2	.02@400
TM-13	6TM-S3	.03@600
TM-14	6TM-S4	.04@600
TM-15	6TM-S5	.05@600
TM-15-2	2TM-S5	.05@200
TM-15-4	4TM-S5	.05@400
TM-16	6TM-S6	.06@600
TM-21	6TM-D1	.001@600
TM-22	6TM-D2	.002@600
TM-23	6TM-D3	.003@600
TM-24	6TM-D4	.004@600
TM-25	6TM-D5	.005@600
TM-26	6TM-D6	.006@600
TM-31	6TM-T1	.0001@600
TM-34	6TM-T4	.0004@600
TM-35	6TM-T5	.0005@600
TM-325	6TM-T25	.00025@600

TYPE 19C CERA-MITES®—Old to new catalog numbers

Old Cat. No.	New Cat. No.	Mfd. @ WVDC
19C1	5HK-D1	.001@500
19C3	5TCC-Q1	.00001@500
19C4	5TCU-Q1	.00001@500
19C5	5TCC-Q15	.000015@500
19C6	5TCU-Q15	.000015@500
19C7	5TCU-Q22	.000022@500
19C8	5TCU-Q33	.000033@500
19C9	5TCU-Q47	.000047@500
19C10	5GA-Q68	.000068@500
19C11	5GA-T1	.0001@500
19C12	5GA-T15	.00015@500
19C13	5GA-T22	.00022@500
19C14	5GA-T33	.00033@500
19C15	5GA-T47	.00047@500
19C17	5GA-T68	.00068@500
19C19	5GA-Q1	.00001@500
19C20	5HK-D15	.0015@500
19C22	5GA-Q15	.000015@500
19C23	5GA-Q22	.000022@500
19C24	5GA-Q33	.000033@500
19C25	5GA-Q47	.000047@500
19C26	5TCU-Q25	.000025@500
19C27	5GA-Q25	.000025@500
19C28	5GA-Q5	.00005@500
19C29	5GA-T12	.00012@500
19C30	5GA-T2	.0002@500
19C31	5GA-T27	.00027@500
19C32	5GA-T5	.0005@500

TYPE 41C CERA-MITES®—Old to new catalog numbers

Old Cat. No.	New Cat. No.	Mfd. @ WVDC
41C1	5GA-D47	.0047@500
41C2	5GA-D5	.005@500
41C4	5TCC-T15	.00015@500
41C5	5TCU-T33	.00033@500
41C6	5HK-S15	.015@500

TYPE 29C CERA-MITES®—Old to new catalog numbers

Old Cat. No.	New Cat. No.	Mfd. @ WVDC
29C1	5HK-D5	.005@500
29C2	5HK-D2	.002@500
29C5	5HK-2D2	2 x .002@500
29C6	5HK-2D15	2 x .0015@500
29C7	5HK-2D1	2 x .001@500
29C8	5GA-D15	.0015@500
29C12	5TCC-Q22	.000022@500
29C13	5TCC-Q33	.000033@500
29C14	5TCC-Q47	.000047@500
29C15	5TCU-Q68	.000068@500
29C16	5TCU-T1	.0001@500
29C17	5TCU-T15	.00015@500
29C18	5TCC-Q25	.000025@500
29C19	5HK-D33	.0033@500
29C20	5HK-D47	.0047@500
29C21	5GA-D1	.001@500
29C27	5HK-2D22	2 x .0022@500
29C28	5HK-D22	.0022@500

TYPE TVL TWIST-LOKS*—Old to new catalog numbers

Old Cat. Nos.	New Cat. No.	Mfd. @ WVDC
TVL-1/ELS-2	TVL-1420	80@150
TVL-3	TVL-1522	50@250
TVL-4	TVL-1578	100@300
TVL-5	TVL-1630	80@350
TVL-6	TVL-1760	125@450
TVL-7	TVL-1810	30@475
TVL-8	TVL-1820	40@475
TVL-9	TVL-1850	90@475
TVL-10	TVL-2120	1000+500@6N.P.
TVL-13	TVL-2150	1000+1000@15
TVL-14	TVL-2585	80+80@300
TVL-15	TVL-2663	30+10@400
TVL-16	TVL-2730	20@450/80@350
TVL-17	TVL-2705	80@450/10@25
TVL-18	TVL-2710	80@450/50@50
TVL-19	TVL-2810	20@475/100@300
TVL-20	TVL-2830	40+40@475
TVL-21	TVL-3475	100+10@200/40@50
TVL-22	TVL-3525	80+80@250/60@200
TVL-23	TVL-3623	40@350/20@300/10@200
TVL-24	TVL-3684	80+40@400/150@50
TVL-25	TVL-3761	40+10@450/80@200
TVL-26	TVL-3703	30@450/100+25@25
TVL-27	TVL-3708	40@450/90+50@150
TVL-28	TVL-3721	10@450/10@350/50@25
TVL-29	TVL-3754	40+10@450/40@50
TVL-30	TVL-3785	40+40+10@450
TVL-31	TVL-3805	20@475/20@300/40@25
TVL-32	TVL-3813	40@475/40@400/25@50
TVL-33	TVL-3835	10+10+10@475
TVL-34	TVL-4612	10+10@350/10+10@300
TVL-35	TVL-4657	40@400/10@350/ 80+10@250
TVL-36	TVL-4750	10+10+10@450/10@150
TVL-37	TVL-4806	10@475/10@450/80@200/ 50@60

TYPE 36C CERA-MITES®—Old to new catalog numbers

Old Cat. No.	New Cat. No.	Mfd. @ WVDC
36C1	5HK-S1	.01@500
36C2	5HK-2D4	2 x .004@500
36C9	5TCC-Q68	.000068@500
36C10	5TCC-T1	.0001@500
36C11	5TCU-T22	.00022@500
36C12	5GA-D33	.0033@500
36C13	5GA-D22	.0022@500
36C14	5HK-D68	.0068@500
36C16	5TCU-T2	.0002@500
36C17	5GA-D2	.002@500
36C21	5HK-2D47	2 x .0047@500

Old Cat. Nos.	New Cat. No.	Mfd. @ WVDC
TVL-38	TVL-4822	40+20+10@475/10@25
TVL-39	TVL-4830	10+10+10+10@475
TVL-40	TVL-4840	40+20+10+10@475
TVL-41	TVL-1010	.5ohm@15.75 KC@3N.P.
TVL-42	TVL-1015	1 ohm@60 CPS@3N.P.
TVL-43	TVL-1115	2000@6
TVL-44	TVL-1540	150@250
TVL-45/EL-4	TVL-1725	40@450
TVL-46	TVL-2588	120+20@300
TVL-47	TVL-2776	80+10@450
TVL-48	TVL-3407	100@150/50@50/25@25
TVL-49	TVL-3403	20@150/250+100@15
TVL-50	TVL-3470	70+70@250/20@50
TVL-51	TVL-3560	100@300/60@150/20@25
TVL-52	TVL-3749	10+10@450/40@50
TVL-53	TVL-3772	40+10@450/10@350
TVL-54	TVL-3758	40+40@450/40@150
TVL-55	TVL-3840	30+30+20@475
TVL-56	TVL-3726	10@450/30@400/30@300
TVL-57	TVL-3706	40@450/40@150/130@50
TVL-58	TVL-4769	30+30+15+10@450
TVL-59	TVL-4718	40+10@450/35+10@350
TVL-60	TVL-4570	60+40+20@300/50@25
TVL-61	TVL-1421	80@150
TVL-62	TVL-1530	80@250
TVL-63/EL-30	TVL-1516	30@250
TVL-64/EL-240	TVL-2764	40+40@450
TVL-65	TVL-3770	20+20@450/60@350
TVL-66	TVL-2140	250@10/1000@6
TVL-67	TVL-3751	20+10@450/50@50
TVL-68	TVL-4753	60+10+10@450/20@150
TVL-69	TVL-2735	40@450/10@350
TVL-70	TVL-1505	15@250
TVL-101	TVL-1584	150@300
TVL-102	TVL-1405	20@150
TVL-103	TVL-1428	140@150
TVL-105/EL-122	TVL-1230	1000@25
TVL-106/EL-2	TVL-1714	20@450
TVL-107/ELS-5	TVL-1573	80@300
TVL-108/EL-33	TVL-1563	30@300
TVL-110/ELS-1	TVL-1412	40@150
TVL-201	TVL-2675	80+40@400
TVL-202	TVL-2445	200+125@150
TVL-203	TVL-2920	40@500/50@200
TVL-204	TVL-2505	40@250/25@25
TVL-205/EL-245	TVL-2520	40+40@250
TVL-207/EL-210	TVL-2750	10+10@450
TVL-208	TVL-2668	60+60@400
TVL-209/EL-151	TVL-2752	15+10@450
TVL-210	TVL-2535	150+150@250
TVL-212/ELS-8	TVL-2442	80+40@150
TVL-213	TVL-2615	20@350/30@250
TVL-214/EL-220	TVL-2755	20+20@450
TVL-215/EL-25	TVL-2435	50+50@150
TVL-216	TVL-2230	150+150@25
TVL-217	TVL-2447	200+200@150
TVL-218	TVL-2759	30+30@450
TVL-219	TVL-2635	80+80@350
TVL-220	TVL-2618	60@350/80@250
TVL-221	TVL-2770	60+40@450
TVL-222/EL-254	TVL-2660	15+15@400
TVL-223/EL-242	TVL-2210	40+40@25
TVL-224	TVL-2010	.5 ohm@15.75KC/ 2.5 ohm@60CPS

Old Cat. Nos.	New Cat. No.	Mfd. @ WVDC
TVL-301	TVL-3665	10@400/40@300/10@150
TVL-302	TVL-3608	10@350/50@150/100@50
TVL-304	TVL-3787	40+40+40@450
TVL-305	TVL-3442	50+50+50@150
TVL-306	TVL-3820	20+20@475/60@400
TVL-307	△TVL-3660	10@400/80+80@250
TVL-308	TVL-3764	40+40@450/100@200
TVL-309	TVL-3711	20@450/60@250/100@25
TVL-313/EL-323	TVL-3636	30+20@350/20@25
TVL-314	TVL-3782	30+30+30@450
TVL-315	TVL-3762	40+10@450/100@200
TVL-316/EL-330	TVL-3741	30+30@450/20@25
TVL-317	TVL-3790	60+30+10@450
TVL-318	†TVL-3522	60+20@250/100@200
TVL-319/EL-350	TVL-3739	20+20@450/20@25
TVL-320	TVL-3612	20@350/30@250/20@25
TVL-321	TVL-3713	20@450/40+10@250
TVL-322	TVL-3640	60+40+20@350
TVL-323	TVL-3517	40+20@250/10@150
TVL-324/EL-310	TVL-3776	10+10+10@450
TVL-325/EL-224	TVL-3437	40+20+20@150
TVL-326	TVL-3746	80+40@450/100@25
TVL-327	TVL-3230	40+40+40@25
TVL-328/EL-311	TVL-3690	10+10+10@400
TVL-329	*TVL-3810	40@475/40@400/20@25
TVL-330	TVL-3448	120+80+40@150
TVL-331	TVL-3670	10@400/50@350/30@25
TVL-332	TVL-3620	30@350/30@300/20@25
TVL-333	TVL-3446	80+80+80@150
TVL-334/EL-300	TVL-3780	20+20+20@450
TVL-401	TVL-4680	80+25+10+10@400
TVL-402	TVL-4555	100@300/40@50/ 80+20@25
TVL-403	TVL-4826	20+20+10@475/10@300
TVL-404	TVL-4705	10@450/10@300/ 60@200/100@50
TVL-405	TVL-4524	80+60+40@250/20@250
TVL-406	TVL-4747	40+40+10@450/ 100@100
TVL-408	TVL-4745	40+40+10@450/25@50
TVL-409	TVL-4628	40+40+40@350/150@50
TVL-410	TVL-4675	80+10+10+10@400
TVL-411	TVL-4815	15+15@475/80@300/ 40@50
TVL-412	TVL-4809	25@475/20@450/ 20@300/100@50
TVL-413	TVL-4732	40+20+20@450/40@25
TVL-414	TVL-4516	100+40+10@250/ 100@50
TVL-415	TVL-4736	40+40+10@450/20@25
TVL-417	TVL-4742	30+30+15@450/30@50
TVL-418	TVL-4766	30+15+15+15@450
TVL-419/EL-410	TVL-4760	10+10+10+10@450
TVL-420	TVL-4575	40+40+40@300/20@150
TVL-421	TVL-4729	40+15+10@450/20@25
TVL-422	TVL-4726	40+10+10@450/250@25
TVL-423	TVL-4579	40+40+20+10@300
TVL-424	TVL-4739	40+40+40@450/40@25
TVL-425	TVL-4662	10+10@400/25+25@25
TVL-426/EL-442	TVL-4667	20+20+20@400/20@25

△Discontinued—Replace with TVL-3712
†Discontinued—Replace with TVL-3562
*Discontinued—Replace with TVL-3813

TYPE EL TWIST-LOKS*—Old to new catalog numbers

Old Cat. Nos.	New Cat. No.	Mfd. @ WVDC
EL-1	TVL-1705	10@450
EL-2/TVL-106	TVL-1714	20@450
EL-3	TVL-1720	30@450
EL-4/TVL-45	TVL-1725	40@450
EL-5	TVL-1622	50@350
EL-6	TVL-1525	60@250
EL-10	TVL-1655	10@400
EL-12	TVL-1509	20@250
EL-13	TVL-1140	3000@10
EL-14	TVL-1460	40@200
EL-15	TVL-1709	15@450
EL-20	TVL-1660	20@400
EL-21	TVL-2565	10+10@300
EL-22	TVL-2555	20@300/20@25
EL-23	TVL-2621	30@350/30@300
EL-24	TVL-2425	40+20@150
EL-25/TVL-215	TVL-2435	50+50@150
EL-26	TVL-2438	60+60@150
EL-30/TVL-63	TVL-1516	30@250
EL-31	TVL-1408	30@150
EL-32	TVL-2627	30+20@350
EL-33/TVL-108	TVL-1563	30@300
EL-35	TVL-2432	50+30@150
EL-42	TVL-1519	40@250
EL-43	TVL-3425	40+30@150/20@25
EL-50	TVL-1320	150@50
EL-51	TVL-1415	50@150
EL-53	TVL-1567	50@300
EL-55	TVL-1330	500@50
EL-80	TVL-1675	80@400
EL-101	TVL-2510	10+10@250
EL-102	TVL-3628	10+10@350/20@25
EL-111	TVL-1165	1000@15
EL-112	TVL-1215	100@25
EL-115	TVL-1940	10@525
EL-120	TVL-2515	20+20@250
EL-121	TVL-1168	2000@15
EL-122/TVL-105	TVL-1230	1000@25
EL-123	TVL-1580	125@300
EL-125	TVL-1638	125@350
EL-142	TVL-1210	40@25
EL-151/TVL-209	TVL-2752	15+10@450
EL-152	TVL-1220	500@25
EL-153	TVL-3630	15+10@350/20@25
EL-202	TVL-3731	10+10@450/20@25
EL-203	TVL-1560	15@300
EL-205	TVL-3737	20+15@450/20@25
EL-210/TVL-207	TVL-2750	10+10@450
EL-212	TVL-3634	20+10@350/20@25
EL-214	TVL-2672	80+10@400
EL-215	TVL-3768	15+5@450/15@350
EL-220/TVL-214	TVL-2755	20+20@450
EL-221/ELS-6	TVL-2415	20+20@150
EL-222/ELS-14	TVL-3415	20+20@150/20@25
EL-224/TVL-325	TVL-3437	40+20+20@150
EL-230	TVL-2422	30+30@150
EL-231	TVL-2418	30+15@150
EL-240/TVL-64	TVL-2764	40+40@450

Old Cat. Nos.	New Cat. No.	Mfd. @ WVDC
EL-242/TVL-223	TVL-2210	40+40@25
EL-245/TVL-205	TVL-2520	40+40@250
EL-250	TVL-2320	50+50@50
EL-253	TVL-2568	15+15@300
EL-254/TVL-222	TVL-2660	15+15@400
EL-300/TVL-334	TVL-3780	20+20+20@450
EL-310/TVL-324	TVL-3776	10+10+10@450
EL-311/TVL-328	TVL-3690	10+10+10@400
EL-312	TVL-3735	20+10@450/20@25
EL-313	TVL-3435	30+30+10@150
EL-314	TVL-3615	30@350/20+10@250
EL-315	TVL-3534	30+15+10@250
EL-316	TVL-3580	10+10+10@300
EL-320/ELS-13	TVL-3433	20+20+20@150
EL-321	TVL-3412	30+20@150/100@6
EL-322	TVL-3678	20+20@400/20@25
EL-323/TVL-313	TVL-3636	30+20@350/20@25
EL-324	TVL-3417	30+20@150/20@25
EL-325	TVL-3210	20+20+20@25
EL-326	TVL-3632	15+15@350/20@25
EL-330/TVL-316	TVL-3741	30+30@450/20@25
EL-331	TVL-3510	15+15@250/20@25
EL-332	TVL-3419	30+30@150/20@25
EL-333	TVL-3565	20+20@300/20@25
EL-334	TVL-3513	30+30@250/20@25
EL-335	TVL-3320	30+30+30@50
EL-340	TVL-3440	40+40+40@150
EL-341	TVL-3570	40+15@300/20@25
EL-342	TVL-3675	15+15@400/40@25
EL-343	TVL-3424	40+30@150/20@25
EL-344	TVL-3778	15+15+10@450
EL-345	TVL-3729	10+10@450/10@25
EL-350/TVL-319	TVL-3739	20+20@450/20@25
EL-351	TVL-3427	50+30@150/100@25
EL-352	TVL-3430	50+50@150/20@25
EL-353	TVL-3733	15+15@450/20@25
EL-354	TVL-3540	40+20+20@250
EL-355	TVL-3530	15+15+10@250
EL-360	TVL-3766	15+15@450/10@300
EL-362	TVL-3716	20@450/15+10@300
EL-363	TVL-3719	10@450/10@350/20@25
EL-364	TVL-3724	15@450/20@350/20@250
EL-410/TVL-419	TVL-4760	10+10+10+10@450
EL-412	TVL-4565	10+10+10@300/20@25
EL-415	TVL-4620	20+10+5@350/10@25
EL-420	TVL-4763	20+20+20+20@450
EL-421	TVL-4708	20@450/15+15@350/ 20@25
EL-422	TVL-4470	40+20+10@200/20@25
EL-423	TVL-4712	20+15@450/20+20@25
EL-424	TVL-4734	40+30+10@450/20@25
EL-425	TVL-4715	20+20@450/30+30@300
EL-431	TVL-4723	10+10+10@450/20@25
EL-432	TVL-4605	40@350/40+20@300/ 20@25
EL-434	TVL-4415	30+30+30@150/40@25
EL-442/TVL-426	TVL-4667	20+20+20@400/20@25
EL-443	TVL-4420	40+40+30@150/20@25
EL-452	TVL-4425	50+50+50@150/20@25

(Continued on back page)

Cross Reference of Sprague
Old to New Catalog Numbers

TYPE ELS TWIST-LOKS*
Old to new catalog numbers

Old Cat. Nos.	New Cat. No.	Mfd. @ WVDC
ELS-1/TVL-110	TVL-1412	40@150
ELS-2/TVL-1	TVL-1420	80@150
ELS-3	TVL-1430	150@150
ELS-4	TVL-1570	60@300
ELS-5/TVL-107	TVL-1573	80@300
ELS-6/EL-221	TVL-2415	20+20@150
ELS-7	TVL-2428	40+40@150
ELS-8/TVL-212	TVL-2442	80+40@150
ELS-9	TVL-2460	40+40@200
ELS-10	TVL-2575	40+40@300
ELS-11	TVL-2579	60+60@300
ELS-12	TVL-2582	80+40@300
ELS-13/EL-320	TVL-3433	20+20+20@150
ELS-14/EL-222	TVL-3415	20+20@150/20@25
ELS-15	TVL-3422	40+20@150/20@25
ELS-16	TVL-3573	40+20@300/20@25

TYPE TA ATOMS®
Old to new catalog numbers

Old Cat. Nos.	New Cat. No.	Mfd. @ WVDC
TA-5/TVA-50	TVA-1203	5@25
TA-10/TVA-5	TVA-1204	10@25
TA-25/TVA-6	TVA-1205	25@25
TA-50/TVA-7	TVA-1206	50@25
TA-55/TVA-13	TVA-1303	5@50
TA-88/TVA-210	TVA-2415	8+8@150
TA-100/TVA-205	TVA-2315	10+10@50
TA-110/TVA-200	TVA-2210	10+10@25
TA-116/TVA-212	TVA-2420	16+16@150
TA-122/TVA-214	TVA-2425	20+12@150
TA-220/TVA-20	TVA-2428	20+20@150
TA-230/TVA-215	TVA-2421	30+20@150
TA-240/TVA-218	TVA-2438	40+20@150
TA-301/TVA-301	TVA-3415	20+20@150/20@25
TA-302/TVA-302	TVA-3440	20+20+20@150
TA-303/TVA-303	TVA-3444	30+30+30@150
TA-304/TVA-304	TVA-3448	40+30+20@150
TA-305/TVA-305	TVA-3423	40+30@150/20@25
TA-306/TVA-306	TVA-3427	40+40@150/100@25
TA-307/TVA-307	TVA-3430	50+30@150/20@25
TA-308/TVA-308	TVA-3433	50+30@150/200@25
TA-309/TVA-309	TVA-3436	50+50@150/20@25
TA-311/TVA-311	TVA-3419	30+30@150/100@12
TA-313/TVA-313	TVA-3716	12+12@450/20@25
TA-314/TVA-314	TVA-3451	40+40+40@150
TA-315/TVA-315	TVA-3455	80+40+20@150
TA-330/TVA-216	TVA-2434	30+30@150
TA-412/TVA-245	TVA-2520	40+10@250
TA-430/TVA-219	TVA-2442	40+30@150
TA-440/TVA-220	TVA-2445	40+40@150
TA-505/TVA-226	TVA-2453	50+50@150
TA-510/TVA-14	TVA-1304	10@50
TA-525/TVA-15	TVA-1306	25@50
TA-530/TVA-224	TVA-2450	50+30@150
TA-550/TVA-16	TVA-1308	50@50
TA-812/TVA-250	TVA-2525	80+10@250
TA-830/TVA-230	TVA-2460	80+30@150

TYPE TVA ATOMS®
Old to new catalog numbers

Old Cat. Nos.	New Cat. No.	Mfd. @ WVDC
TVA-1/UHC-1000	TVA-1104	1000@6
TVA-2	TVA-1106	2000@6
TVA-3/UHC-212	TVA-1131	250@12
TVA-4/UHC-512	TVA-1132	500@12
TVA-5/TA-10	TVA-1204	10@25
TVA-6/TA-25	TVA-1205	25@25
TVA-7/TA-50	TVA-1206	50@25
TVA-8/UHC-102	TVA-1207	100@25
TVA-9/UHC-202	TVA-1208	250@25
TVA-10/UHC-502	TVA-1209	500@25
TVA-11	TVA-1300	1@50
TVA-12	TVA-1301	2@50
TVA-13/TA-55	TVA-1303	5@50
TVA-14/TA-510	TVA-1304	10@50
TVA-15/TA-525	TVA-1306	25@50
TVA-16/TA-550	TVA-1308	50@50
TVA-17/UHC-105	TVA-1310	100@50
TVA-18/UT-301	TVA-1412	30@150
TVA-19	TVA-1418	80@150
TVA-20/TA-220	TVA-2428	20+20@150
TVA-21/UT-10	TVA-1705	10@450
TVA-22/UT-20	TVA-1709	20@450
TVA-23/UT-30	TVA-1711	30@450
TVA-24/UT-40	TVA-1712	40@450
TVA-25	TVA-2722	10+10@450
TVA-26/UHC-206	TVA-1102	250@6
TVA-27/UHC-506	TVA-1103	500@6
TVA-28/UHC-1500	TVA-1105	1500@6
TVA-29	TVA-1422	150@150
TVA-30	TVA-1100	50@6
TVA-31/UHC-106	TVA-1101	100@6
TVA-35/UHC-112	TVA-1130	100@12
TVA-38/UHC-1012	TVA-1133	1000@12
TVA-42/UHC-115	TVA-1160	100@15
TVA-43/UHC-215	TVA-1161	250@15
TVA-44/UHC-515	TVA-1162	500@15
TVA-45/UHC-1015	TVA-1163	1000@15
TVA-49	TVA-1201	2@25
TVA-50/TA-5	TVA-1203	5@25
TVA-56	TVA-1311	150@50
TVA-60/UT-41	TVA-1402	4@150
TVA-61/UT-81	TVA-1405	8@150
TVA-62/UT-101	TVA-1406	10@150
TVA-63/UT-121	TVA-1407	12@150
TVA-64/UT-161	TVA-1409	16@150
TVA-65/UT-201	TVA-1410	20@150
TVA-66/UT-401	TVA-1413	40@150
TVA-67/UT-501	TVA-1414	50@150
TVA-68	TVA-1420	100@150
TVA-75/UT-42	TVA-1501	4@250
TVA-76/UT-82	TVA-1503	8@250
TVA-77	TVA-1504	10@250
TVA-78/UT-122	TVA-1505	12@250
TVA-79/UT-162	TVA-1507	16@250
TVA-80/UT-202	TVA-1508	20@250
TVA-81	TVA-1510	30@250
TVA-82/UT-402	TVA-1511	40@250
TVA-87/UT-43	TVA-1601	4@350
TVA-88/UT-83	TVA-1603	8@350
TVA-89	TVA-1604	10@350
TVA-90/UT-123	TVA-1605	12@350
TVA-91/UT-163	TVA-1607	16@350
TVA-92/UT-203	TVA-1608	20@350
TVA-93	TVA-1610	30@350
TVA-94	TVA-1611	40@350
TVA-101	TVA-1613	60@350
TVA-103	TVA-1701	2@450
TVA-104/UT-4	TVA-1702	4@450
TVA-106/UT-8	TVA-1704	8@450
TVA-108/UT-12	TVA-1706	12@450
TVA-110/UT-16	TVA-1708	16@450
TVA-114	TVA-1713	50@450
TVA-116	TVA-1716	80@450
TVA-120	TVA-1802	10@475
TVA-121	TVA-1804	20@475
TVA-130/UT-85	TVA-1902	8@500
TVA-133/UT-165	TVA-1905	16@500
TVA-134/UT-205	TVA-1906	20@500
TVA-200/TA-110	TVA-2210	10+10@25
TVA-205/TA-100	TVA-2315	10+10@50
TVA-210/TA-88	TVA-2415	8+8@150
TVA-212/TA-116	TVA-2420	16+16@150
TVA-214/TA-122	TVA-2425	20+12@150
TVA-215/TA-230	TVA-2421	30+20@150
TVA-216/TA-330	TVA-2434	30+30@150
TVA-218/TA-240	TVA-2438	40+20@150
TVA-219/TA-430	TVA-2442	40+30@150
TVA-220/TA-440	TVA-2445	40+40@150
TVA-224/TA-530	TVA-2450	50+30@150
TVA-226/TA-505	TVA-2453	50+50@150
TVA-230/TA-830	TVA-2460	80+30@150
TVA-240	TVA-2515	20+20@250
TVA-245/TA-412	TVA-2520	40+10@250
TVA-250/TA-812	TVA-2525	80+10@250
TVA-260/UT-88	TVA-2720	8+8@450
TVA-262/UT-816	TVA-2725	16+8@450
TVA-264/UT-220	TVA-2730	20+20@450
TVA-266	TVA-2735	30+30@450
TVA-268	TVA-2740	40+40@450
TVA-301/TA-301	TVA-3415	20+20@150/20@25
TVA-302/TA-302	TVA-3440	20+20+20@150
TVA-303/TA-303	TVA-3444	30+30+30@150
TVA-304/TA-304	TVA-3448	40+30+20@150
TVA-305/TA-305	TVA-3423	40+30@150/20@25
TVA-306/TA-306	TVA-3427	40+40@150/100@25
TVA-307/TA-307	TVA-3430	50+30@150/20@25
TVA-308/TA-308	TVA-3433	50+30@150/200@25
TVA-309/TA-309	TVA-3436	50+50@150/20@25
TVA-311/TA-311	TVA-3419	30+30@150/100@12
TVA-313/TA-313	TVA-3716	12+12@450/20@25
TVA-314/TA-314	TVA-3451	40+40+40@150
TVA-315/TA-315	TVA-3455	80+40+20@150

TYPE UHC ATOMS®
Old to new catalog numbers

Old Cat. Nos.	New Cat. No.	Mfd. @ WVDC
UHC-102/TVA-8	TVA-1207	100@25
UHC-105/TVA-17	TVA-1310	100@50
UHC-106/TVA-31	TVA-1101	100@6
UHC-112/TVA-35	TVA-1130	100@12
UHC-115/TVA-42	TVA-1160	100@15
UHC-202/TVA-9	TVA-1208	250@25
UHC-206/TVA-26	TVA-1102	250@6
UHC-212/TVA-3	TVA-1131	250@12
UHC-215/TVA-43	TVA-1161	250@15
UHC-502/TVA-10	TVA-1209	500@25
UHC-506/TVA-27	TVA-1103	500@6
UHC-512/TVA-4	TVA-1132	500@12
UHC-515/TVA-44	TVA-1162	500@15
UHC-1000/TVA-1	TVA-1104	1000@6
UHC-1012/TVA-38	TVA-1133	1000@12
UHC-1015/TVA-45	TVA-1163	1000@15
UHC-1500/TVA-28	TVA-1105	1500@6

TYPE UT ATOMS®
Old to new catalog numbers

Old Cat. Nos.	New Cat. No.	Mfd. @ WVDC
UT-4/TVA-104	TVA-1702	4@450
UT-8/TVA-106	TVA-1704	8@450
UT-10/TVA-21	TVA-1705	10@450
UT-12/TVA-108	TVA-1706	12@450
UT-16/TVA-110	TVA-1708	16@450
UT-20/TVA-22	TVA-1709	20@450
UT-30/TVA-23	TVA-1711	30@450
UT-40/TVA-24	TVA-1712	40@450
UT-41/TVA-60	TVA-1402	4@150
UT-42/TVA-75	TVA-1501	4@250
UT-43/TVA-87	TVA-1601	4@350
UT-81/TVA-61	TVA-1405	8@150
UT-82/TVA-76	TVA-1503	8@250
UT-83/TVA-88	TVA-1603	8@350
UT-85/TVA-130	TVA-1902	8@500
UT-88/TVA-260	TVA-2720	8+8@450
UT-101/TVA-62	TVA-1406	10@150
UT-121/TVA-63	TVA-1407	12@150
UT-122/TVA-78	TVA-1505	12@250
UT-123/TVA-90	TVA-1605	12@350
UT-161/TVA-64	TVA-1409	16@150
UT-162/TVA-79	TVA-1507	16@250
UT-163/TVA-91	TVA-1607	16@350
UT-165/TVA-133	TVA-1905	16@500
UT-201/TVA-65	TVA-1410	20@150
UT-202/TVA-80	TVA-1508	20@250
UT-203/TVA-92	TVA-1608	20@350
UT-205/TVA-134	TVA-1906	20@500
UT-220/TVA-264	TVA-2730	20+20@450
UT-301/TVA-18	TVA-1412	30@150
UT-401/TVA-66	TVA-1413	40@150
UT-402/TVA-82	TVA-1511	40@250
UT-501/TVA-67	TVA-1414	50@150
UT-816/TVA-262	TVA-2725	16+8@450

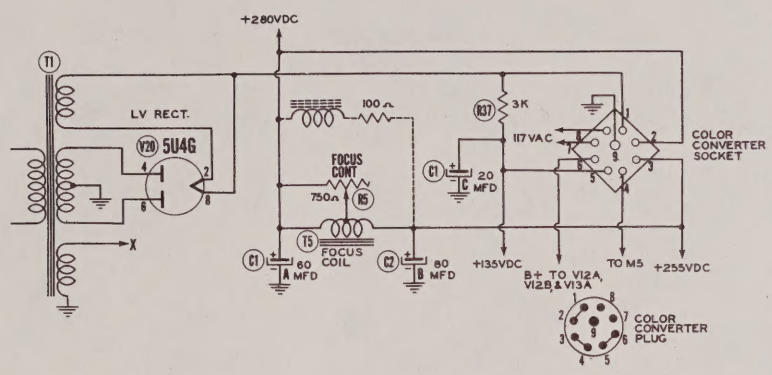
SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 2 IN SET 118.

The following production changes were made on Admiral chassis 21B1, 21C1, 21D1, 21E1, 21H1, 21J1.

ADDITION OF SOCKET AND PLUG FOR ATTACHMENT OF A COLOR CONVERTER.

Run 6 in 21B1.
Run 9 in 21C1.
Run 7 in 21D1.
Run 5 in 21J1.
Run 2 in 21H1.

A 9 contact socket was added at the rear of the TV chassis to provide B+ voltages and 110VAC for attachment of a color converter. A plug fits into the socket to complete the B+ circuits when a color converter is not used. The partial schematic below shows the addition of the color converter socket.



CHANGE IN FOCUS CIRCUIT.

Run 10 in 21B1.

Run 10 of 21B1 chassis uses a PM focusing assembly (Part # 94C35-1). The parts eliminated when this assembly is used are the focus control and the focus coil. These parts have been replaced with a filter choke (Part # 74B18-4) and a 100Ω, 7.5watt resistor. The filter choke and resistor are connected in the circuit as shown in the partial schematic above.

TYPE 12H6 TUBE USED FOR HORIZ. PHASE DETECTOR.

A type 12H6 tube may be used in place of a 6AL5 or 6H6 tube (V15) for the horizontal phase detector. When the 12H6 tube is used an auto-transformer (Part # 80B32) to provide 12.6 volts for the heater of the tube. The low end (black lead) connects to chassis ground, the center tap (green lead) connects to pin 7 of V18, and the high end (yellow lead) connects to pin 7 of the 12H6.

ADMIRAL CHASSIS 21B1, 21C1, 21D1, 21E1, 21J1, 21H1.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 9 IN SET 124.

Sentinel Models 429, 430, 431, 1U429, 1U430 and 1U431 are identical to Model 420B covered in Photofact Folder 9, Set 124 except for the differences noted below.

"Series YA" Chasis

A 3 amp fuse was added in series with the primary winding of the power transformer T1.

The fuse holder for the 3 amp fuse was added to back of chassis.

V19 was changed to a type 1B3GT.

V6 may be either a 6CB6 or 6AG5. However they are not interchangeable since difference in the tube capacities would necessitate realignment of this IF stage.

"Series YB" Chassis

The 3 amp fuse noted above was changed to a 3/8 amp 250 V Slo-Blo and placed in series with the B-circuit.

"Series YC" chassis.

V4, V5 and V6 changed to 6CB6 tubes.

In the 1st IF stage the jumper from pin 2 of the socket shield was removed.

C27 was grounded to socket shield instead of pin 2 of socket.

A 27Ω resistor was added from pin 2 of the socket to chassis ground.

In the 2nd IF stage pin 7 of the socket was grounded to socket shield.

In the 3rd IF stage a jumper was connected from pin 7 of the socket to pin 2 of the socket.

SENTINEL MODELS 1U429, 1U430, 1U431, 429, 430, 431.

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PHOTOFACT* Folder

*TRADE MARK

CORONADO MODELS
15TV2-43-9025A, B, 15TV2-43-9026A, B

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Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 15TV2-43-9026A

CORONADO MODELS
15TV2-43-9025A, B, 15TV2-43-9026A, B

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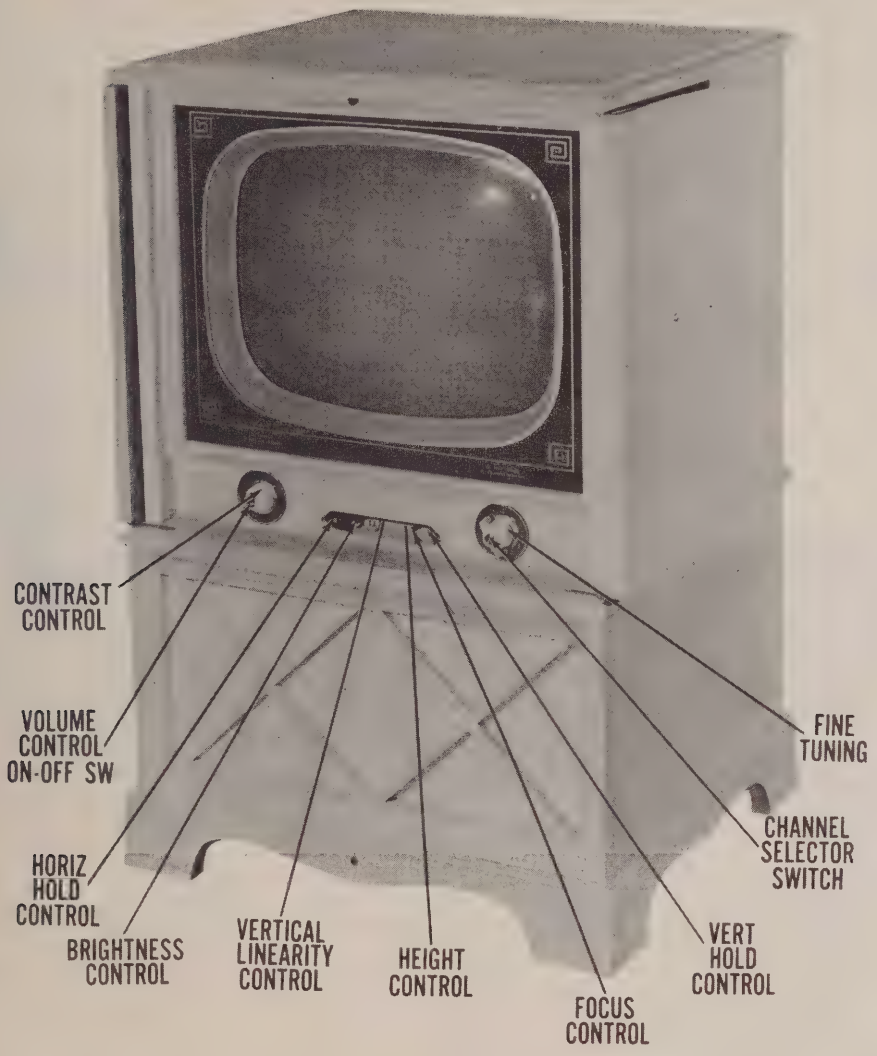
DATE 9-51 SET 144 FOLDER 3

CORONADO MODELS
15TV2-43-9025A, B, 15TV2-43-9026A, B



CORONADO MODELS
15TV2-43-9025A, B, 15TV2-43-9026A, B

CORONADO MODEL 15TV2-43-9026A

TRADE NAME	Coronado, Models 15TV2-43-9025A, B, 15TV2-43-9026A, B
SUPPLIER	Gamble-Skogmo, Inc., 15 N. 8th St. Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	Twenty-three
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING 2.1 Amp. at 117 Volts AC
TUNING RANGE—	CHANNELS 2 thru 13

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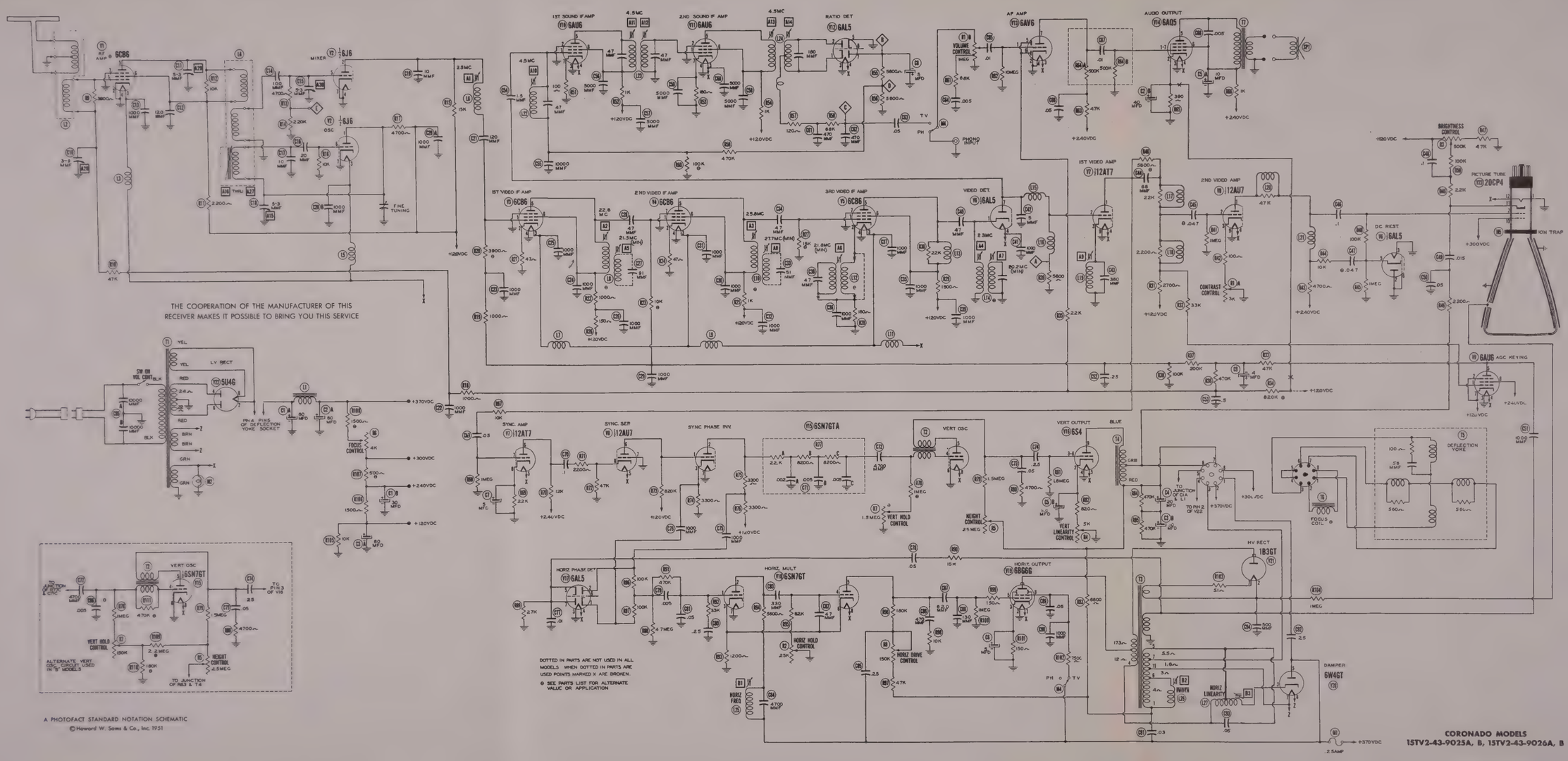
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⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
ALTERNATE VERT. OSC. CIRCUIT USED IN "B" MODELS
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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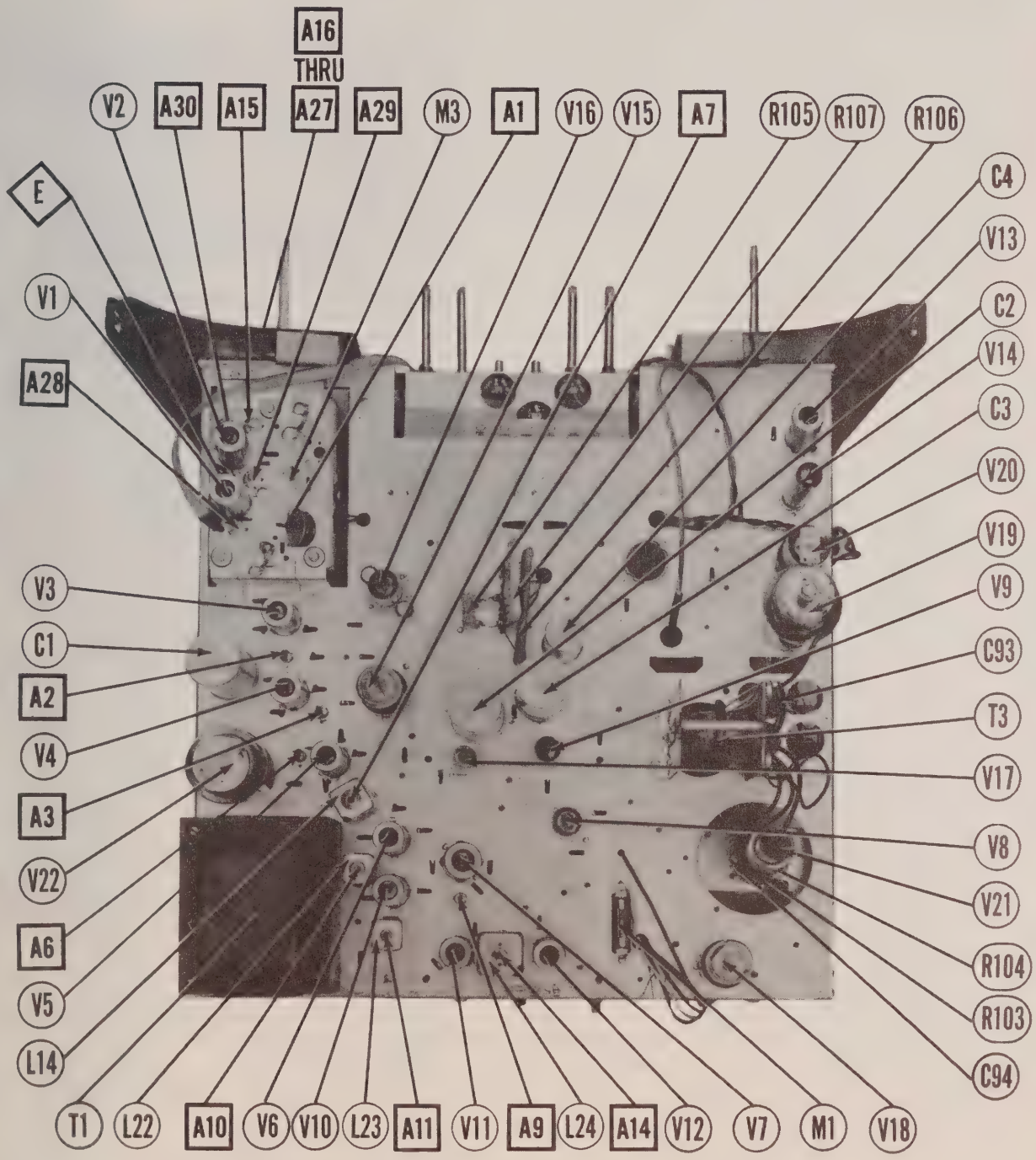
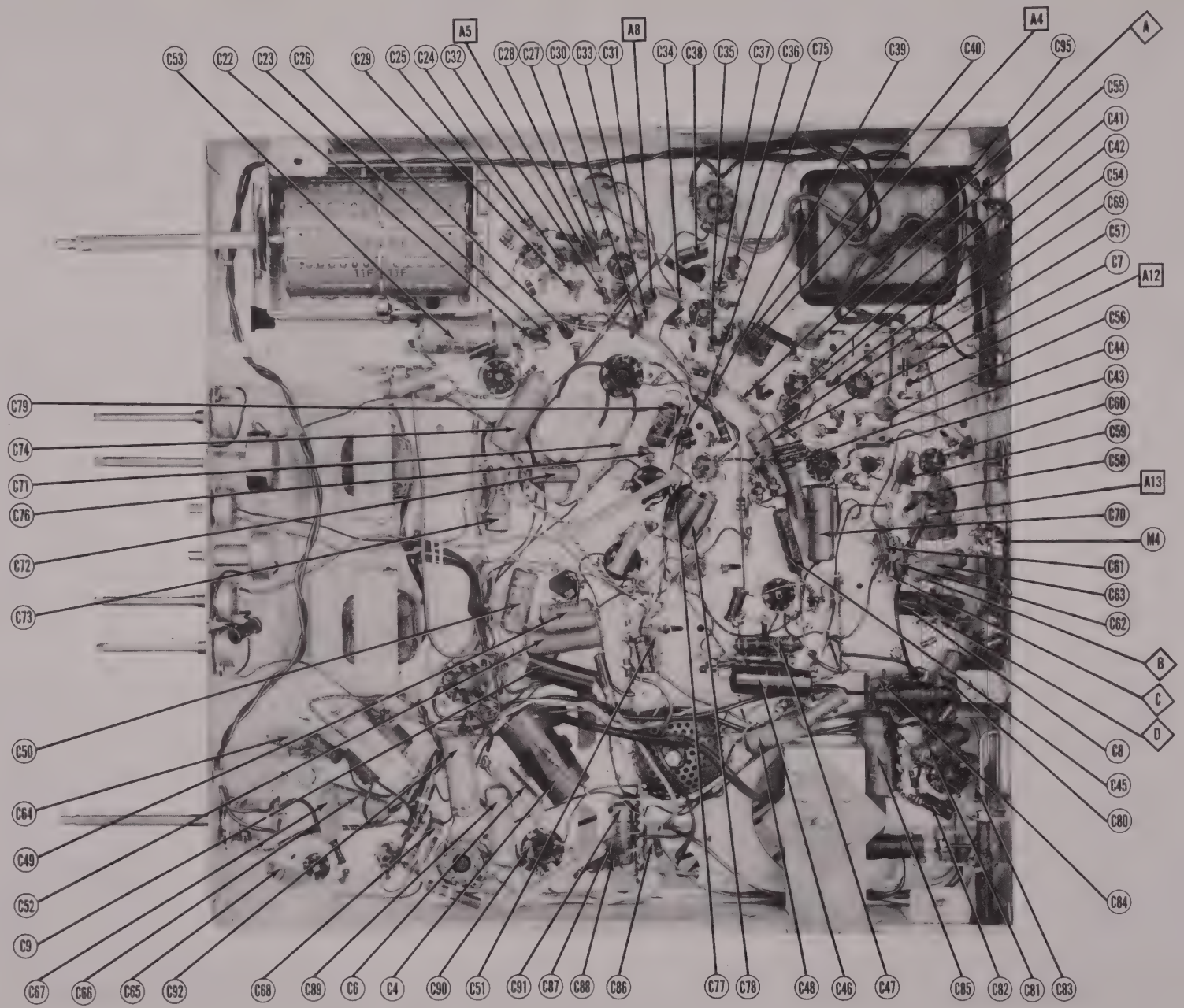
CORONADO MODELS
15TV2-43-9025A, B, 15TV2-43-9026A, B

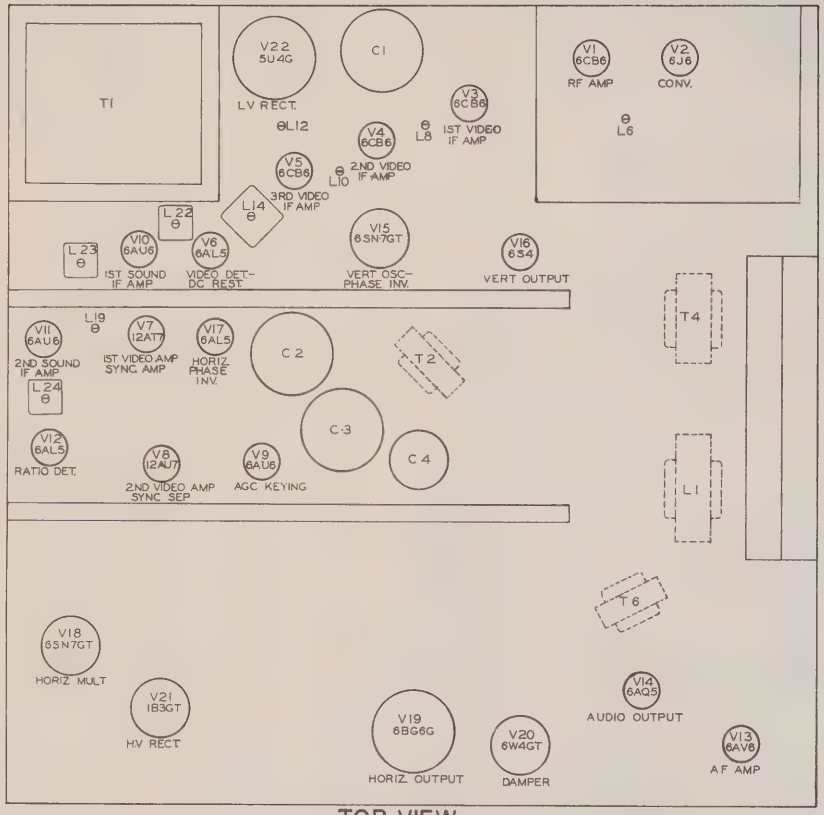
CORONADO MODELS
15TV2-43-9025A, B, 15TV2-43-9026A, B



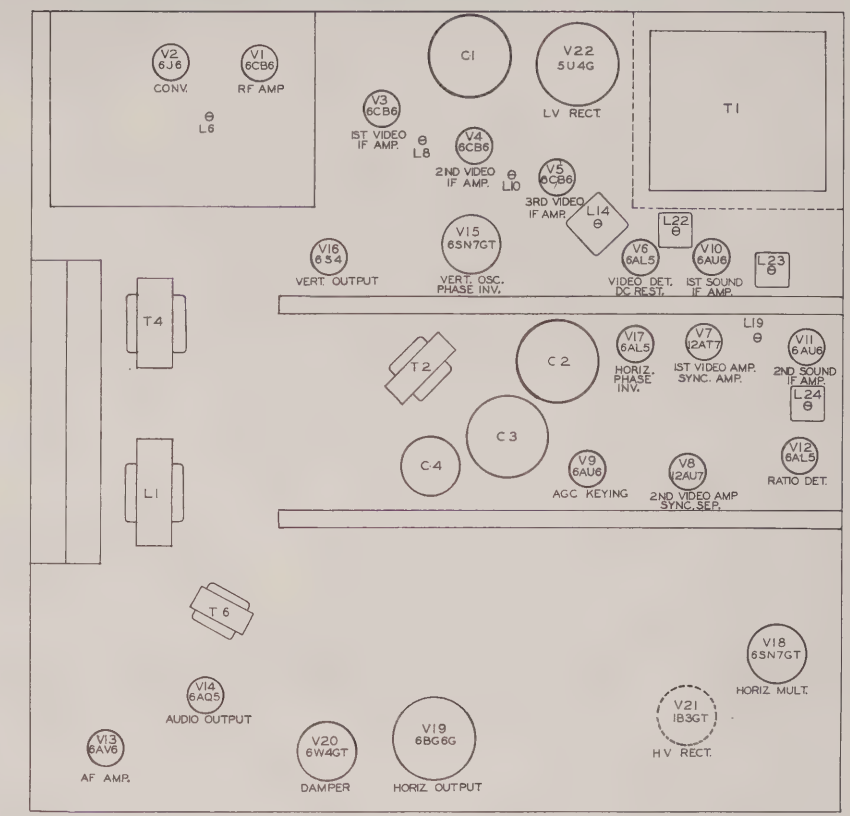
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

CORONADO MODELS
15TV2-43-9025A, B, 15TV2-43-9026A, B

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V18), from its socket.

VIDEO IF ALIGNMENT (A VERSIONS ONLY)

Remove the converter tube, (V2), and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to ungrounded lead of C52, connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	25MC (unmod.)	Any	DC probe to Point A . Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	22.6MC	"	"	A2	"
3.	"	"	25.8MC	"	"	A3	"
4.	"	"	23MC	"	"	A4	"
5.	"	"	21.5MC	"	"	A5	Adjust for MINIMUM deflection.
6.	"	"	21.8MC	"	"	A6	"
7.	"	"	20.2MC	"	"	A7	"
8.	"	"	27.7MC	"	"	A8	"

VIDEO IF ALIGNMENT (B VERSIONS ONLY)

See instructions under A version Video IF alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	25.1MC (unmod.)	Any	DC Probe to Point A . Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	23.1MC	"	"	A2	"
3.	"	"	25.9MC	"	"	A3	"
4.	"	"	24.1MC	"	"	A4	"
5.	"	"	21.7MC	"	"	A7	Adjust for MINIMUM deflection. Continue with step 9.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	24MC (10MC SWP)	21.7MC 22.4MC 22.6MC 25.25MC 26.2MC	Any	Vert. Amp. to Point A . Low side to chassis.		Check for response curve similar to fig. 1A or 1B. If necessary retouch A1 thru A4 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	10KΩ resistor	High side thru 10KΩ to pin 2, (Grid) of 12AT7, (V7). Low side to chassis.	Not used	4.5MC (400% Mod.)	Any	Vert. Amp. to pin 2, (Grid) of picture tube. Low side to chassis.	A9	Adjust for MINIMUM 400% indication on scope

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect a short across C55.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	10KΩ resistor	High side thru 10KΩ to pin 7, (plate), of 6AL5, (V6). Low side to chassis.	4.5MC (unmod.)	Any	DC probe to Point B . Common to chassis.	A10, A11, A12, A13	Adjust for maximum deflection.
12.	"	"	"	"	DC probe to Point C . Common to Point D .	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	10KΩ resistor	High side thru 10KΩ to pin 7 (plate) of 6AL5, (V10). Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. Amp. to Point B . Low side to chassis.	A10, A11, A12, A13	Disconnect stabilizer capacitor C8. Adjust for maximum amplitude and symmetry as per fig. 2.
12.	"	"	"	"	"	Vert. Amp. to Point C . Low side to chassis.	A14	Reconnect capacitor C8. Adjust A14 so 4.5MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A13 for maximum amplitude and straightness of crossover lines.

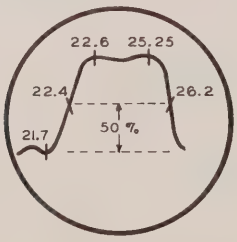


FIG. 1A

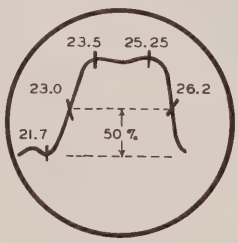


FIG. 1B

FIG. 2

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A15. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A15 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to Point A . Low side to chassis.	A16	Adjust to place sound marker in "notch" as per fig. 4. The video marker should be at 50%.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A17	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A18	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A19	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A20	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A21	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A22	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A23	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A24	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A25	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A26	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A27	

RF AND MIXER ALIGNMENT

Leave the 3 volts bias connected as during video IF alignment.
Remove the AGC keying tube, (V9) from its socket.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to Point E . Low side to chassis.	A28, A29 A30	Adjust for response curve similar to fig. 5 with markers above 90%.
15.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to fig. 5. If markers fall below 70% on any channel, make slight adjustments of A38, A29, and A30 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.25MC	5			
			69MC (10MC SWP)	67.85MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

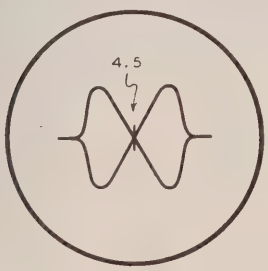


FIG. 3

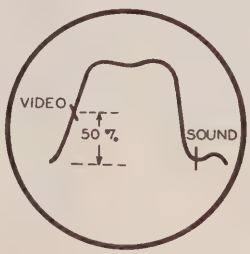


FIG. 4

FIG. 5

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
Turn the horizontal hold control to the mid-position of its range.
Adjust the horizontal frequency slug, (B1), to the center of the range over which the picture synchronizes horizontally.
Turn the horizontal drive control clockwise until white, beaded, vertical lines appear in the left center portion of the picture. Then turn the control counter-clockwise just enough to remove the lines.
Adjust the width slug, (B2), until the picture is slightly wider than necessary to fill the mask horizontally.
Adjust the horizontal linearity slug, (B), until the picture is symmetrical from left to right.

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	.4VDC	0V	6.3VAC	0V	80VDC	80VDC	0V		
V 2	6J6	65VDC	75VDC	6.3VAC	0V	1.6VDC	§-3.7VDC	0V		
V 3	6CB6	-.1VDC	.5VDC	6.3VAC	0V	95VDC	95VDC	0V		
V 4	6CB6	-.1VDC	.6VDC	6.3VAC	0V	95VDC	95VDC	0V		
V 5	6CB6	0V	1.2VDC	6.3VAC	0V	95VDC	95VDC	0V		
V 6	6AL5	0V	0V	0V	6.3VAC	1.8VDC	0V	-1.5VDC		
V 7	12AT7	75VDC	-.2VDC	0V	6.3VAC	6.3VAC	285VDC	0V	6.4VDC	0V
V 8	12AU7	220VDC	0V	10.3VDC	6.3VAC	6.3VAC	14VDC	0V	2.1VDC	0V
V 9	6AU6	100VDC	105VDC	0V	6.3VAC	-.4VDC	240VDC	105VDC		
V 10	6AU6	0V	0V	0V	6.3VAC	100VDC	100VDC	.2VDC		
V 11	6AU6	0V	0V	6.3VAC	0V	100VDC	100VDC	1.1VDC		
V 12	6AL5	-.3VDC	-.3VDC	0V	6.3VAC	0V	0V	-.6VDC		
V 13	6AV6	-.5VDC	0V	6.3VAC	0V	-.5VDC	-.5VDC	70VDC		
V 14	6AQ5	0V	13VDC	0V	6.3VAC	195VDC	210VDC	0V		
V 15	6SN7GTA	§18VDC	75VDC	16VDC	-58VDC §-32VDC	275VDC 105VDC	0V	0V	6.3VAC	
V 16	6S4	0V	39VDC 18VDC	0V	0V	6.3VAC	0V	0V	0V	550VDC
V 17	6AL5	13VDC	-4.4VDC	0V	6.3VAC	0V	0V	0V		
V 18	6SN7GT	§1VDC	310VDC	16VDC	§-8.4VDC	220VDC 180VDC	16VDC	0V	6.3VAC	
V 19	6BG6G	0V	0V	13VDC	370VDC	-22VDC	-22VDC	6.3VAC	320VDC	Top Cap *
V 20	6W4GT	0V	540VDC	610VDC	0V	370VDC	600VDC	610VDC	610VDC	
V 21	1B3GT	* DO NOT MEASURE								Top Cap *
V 22	5U4G	0V	380VDC	0V	370VAC	0V	370VAC	0V	380VDC	
V 23	20CP4	0V	1.2VDC	Pin 10 300VDC	Pin 11 110VDC 8VDC	Pin 12 6.3VAC	H.V. Connector * * 12.2KV			

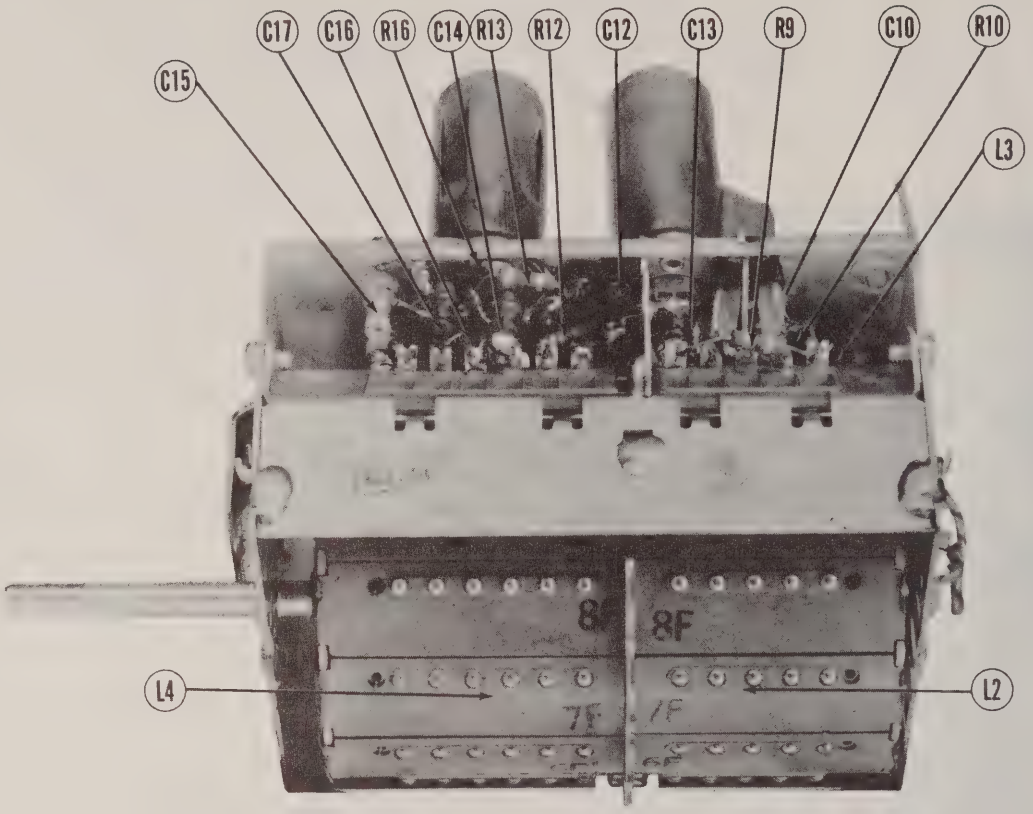
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED.
FOCUS CONTROL FULLY COUNTERCLOCKWISE.
TV - PHONO SWITCH IN TV POSITION.
* DO NOT MEASURE.
§ TAKEN WITH VACUUM TUBE VOLTMETER.
* * USE EXTREME CAUTION WHEN MEASURING THIS VOLTAGE.

RESISTANCE READINGS

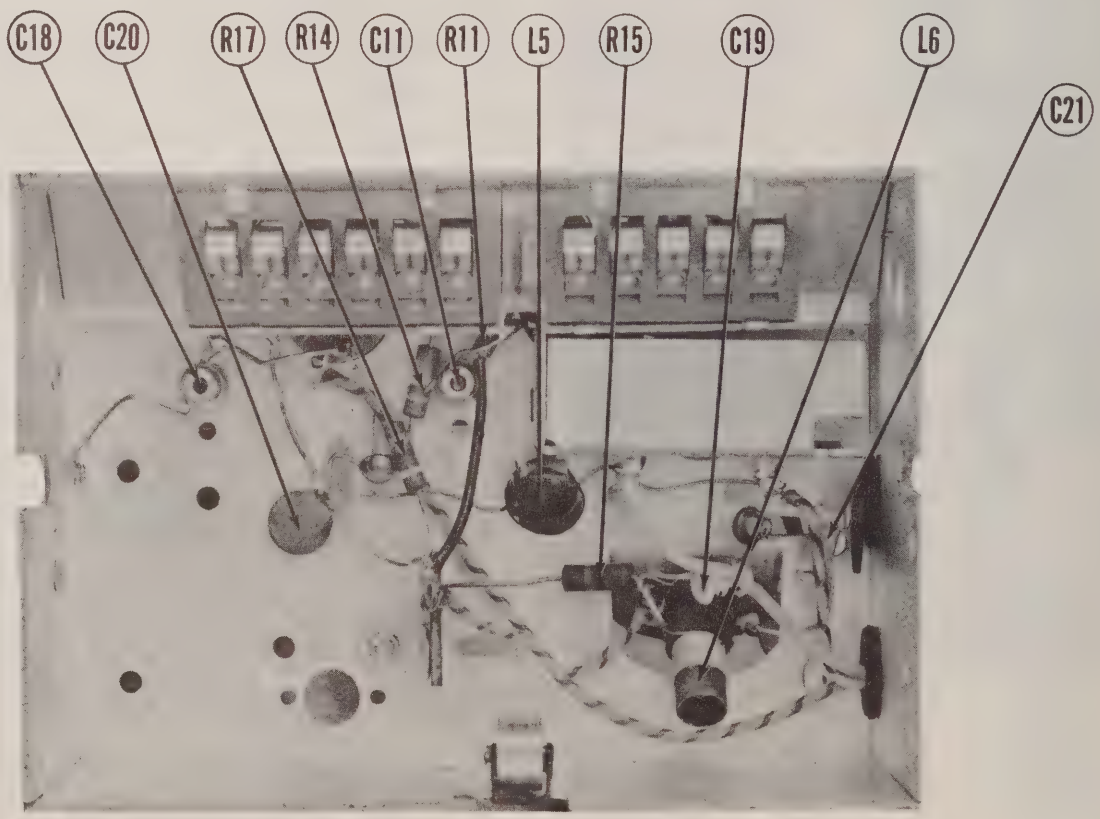
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	460KΩ	0Ω	.1Ω	0Ω	†5KΩ	†5KΩ	0Ω		
V 2	6J6	†7.5KΩ	†17KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	100KΩ	47Ω	.1Ω	0Ω	†3.9KΩ	†3.9KΩ	0Ω		
V 4	6CB6	110KΩ	47Ω	.1Ω	0Ω	†3.8KΩ	†3.8KΩ	0Ω		
V 5	6CB6	15KΩ	180Ω	.1Ω	0Ω	†4.3KΩ	†4.3KΩ	0Ω		
V 6	6AL5	.2Ω	0Ω	0Ω	.1Ω	1Meg	0Ω	5.6KΩ		
V 7	12AT7	†11KΩ	5.6KΩ	.3Ω	.1Ω	.1Ω	†13KΩ	1Meg	22KΩ	0Ω
V 8	12AU7	†6KΩ	1Meg	3.1KΩ	.1Ω	.1Ω	†820KΩ	0Ω	47KΩ	0Ω
V 9	6AU6	†35KΩ	†2.8KΩ	0Ω	.1Ω	365KΩ	†1.3KΩ	†2.8KΩ		
V 10	6AU6	470KΩ	0Ω	0Ω	.1Ω	†3.8KΩ	†3.8KΩ	100Ω		
V 11	6AU6	2.6Ω	0Ω	.1Ω	0Ω	†3.8KΩ	†3.8KΩ	180Ω		
V 12	6AL5	Inf.	Inf.	0Ω	.1Ω	0Ω	Inf.	11KΩ		
V 13	6AV6	10Meg	0Ω	.1Ω	0Ω	400KΩ	400KΩ	†550KΩ		
V 14	6AQ5	500KΩ	390Ω	0Ω	.1Ω	†2.8KΩ	†2.3KΩ	500KΩ		
V 15	6SN7GTA	†820KΩ	†9.5KΩ	3.3KΩ	2.5Meg 1Meg	#4Meg #1.5Meg	0Ω	0Ω	.1Ω	
V 16	6S4	Inf.	5.8KΩ 820Ω	1.8Meg	0Ω	.1Ω	1.8Meg	Inf.	Inf.	#7.8KΩ
V 17	6AL5	4.8Meg	4.8Meg	0Ω	.1Ω	27KΩ	Inf.	27KΩ		
V 18	6SN7GT	5.2Meg	†5.7KΩ	1.2KΩ	100KΩ 82KΩ	#380KΩ #225KΩ	1.2KΩ	0Ω	.1Ω	
V 19	6BG6G	Inf.	0Ω	150Ω	†52Ω	1Meg	1Meg	.1Ω	†7.5KΩ	Top Cap #18Ω
V 20	6W4GT	Inf.	#6.8KΩ	223KΩ	Inf.	†52Ω	#12Ω	#8Ω	#8Ω	
V 21	1B3GT	PINS 1-8 HAVE INF. RESISTANCE								Top Cap #185Ω
V 22	5U4G	Inf.	12KΩ	Inf.	24Ω	Inf.	22Ω	Inf.	12KΩ	
V 23	20CP4	0Ω	1.1Meg	Pin 10 †600Ω	Pin 11 †195KΩ †120KΩ	Pin 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED.
FOCUS CONTROL FULLY COUNTERCLOCKWISE.
TV-PHONO SWITCH IN TV POSITION.
† MEASURED FROM PIN 2 OF V22.
# MEASURED FROM PIN 3 OF V20.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary accosding to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		CORONADO PART No.	STANDARD REPLACEMENT		
V1A	RF Amplifier	6CB6	6CB6	6CK	
B	RF Amplifier	6BC5	6BC5	7BD	
C	RF Amplifier	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	6CK	
V4	2nd. Video IF Amp.	6CB6	6CB6	6CK	
V5	3rd. Video IF Amp.	6CB6	6CB6	6CK	
V6	Video Detector-DC Restorer	6AL5	6AL5	6BT	
V7	1st. Video Amp.-Sync. Amplifier	12AT7	12AT7	9A	
V8	2nd. Video Amp.-Sync. Separater	12AU7	12AU7	9A	
V9	AGC Keying	6AU6	6AU6	7BK	
V10	1st. Sound IF Amp.	6AU6	6AU6	7BK	
V11	2nd. Sound IF Amp.	6AU6	6AU6	7BK	
V12	Ratio Detector	6AL5	6AL5	6BT	
V13	AF Amplifier	6AV6	6AV6	7BT	
V14	Audio Output	6AQ5	6AQ5	7BZ	
V15	Vert. Oscillator-Phase Inverter	6SN7GTA	6SN7GTA	8BD	
V16	Vertical Output	6S4	6S4	9AC	
V17	Horizontal Phase Detector	6AL5	6AL5	6BT	
V18	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V19	Horiz. Output	6BG6G	6BG6G	5BT	
V20	Damper	6W4GT	6W4GT	4CG	
V21	HV Rectifier	1B3GT	1B3GT	3C	
V22	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA			RTMA BASE TYPE	NOTES
	CORONADO PART No.	SYLVANIA PART No.	THOMAS PART No.		
V23	20CP4	20CP4	20CP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	80	450	45X376	AFH2-49		UP8445		TVL-2777	▪ Filter
B	30	450							▲ Filter
C2A	80	450	45X384	AFH2-66		UPT8045		TVL-2710	▪ Filter
B	40	50				V5			▲ Audio Output Cathode
C3A	80	450	45X376	AFH2-49		UP8445		TVL-2777	▪ Filter
B	30	450							▲ Vert. Output Decoupling
C4	20	450	45X382	PRS450/20		BR2045A		TVA-1709	Vert. Output Decoupling
C5A	10	450	45X385			UPT2150		TVL-1705	■ Aduio Output Decoupling
B	100	50				V10		TVA-1310	▲ Vert. Output Cathode
C6	5	25	45X378	PRS150/4		BR550		TVA-1203	Horiz. Output Cathode
C7	5	25	45X378	PRS150/4		BR550		TVA-1203	Sync. Amp. Cathode
C8	5	25	45X378	PRS150/4		BR550		TVA-1203	Stabilizing Cap.
C9	4	100	45X361	PRS150/4		BR415		TVA-1402	AGC Filter
C10	3-9		31B-207		829-10				Variable Trimmer
C11	.5-3		31B-205		829-3				Variable Trimmer
C12	120		13B-033		TCN-120		N750L-121		RF Amp. Decoupling
C13	1000		13D-041	SI100	D6-102		GP2L-102	5HK-D1	RF Amp. Fil.
C14	100		13D-046	SI100N750	TCN-100		N750L-101	5TCC-T1	RF Coupling
C15	.5-3		31B-205		829-3				Variable Trimmer
C16	20		13D-042	SI20NP0	TCZ-20		NP0K-200		Osc. Grid Cap.
C17	10		13D-064	SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C18	.5-3		31B-206		829-3				Variable Trimmer
C19	10		13D-053	SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C20A	1000		13D-071	BPD-2X001	DD-2-102		812-001	5HK-2D1	RF Bypass
B	1000								Conv. Filament
C21	120		13B-033		TCN-120		N750L-121		IF Coupling
C22	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	AGC Filter
C23	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	AGC Filter
C24	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	1st Video IF Decoupling
C25	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	1st Video IF Filament
C26	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	RF Bypass
C27	91	500			TCZ-91		NP0-333-910		Fixed Trimmer
C28	47	500	47X565	1469-00005	TCZ-47	5R5Q5	NP0L-470	5TCC-Q47	IF Coupling
C29	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	AGC Filter
C30	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	2nd. Video IF Decoupling
C31	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	2nd Video IF Filament
C32	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	RF Bypass
C33	51	500		1469-00005	TCZ-51	5R5Q5	NP0-333-510		Fixed Trimmer
C34	47	500	47X565	1469-00005	TCZ-47	5R5Q5	NP0L-470	5TCC-Q47	IF Coupling
C35	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	3rd. Video IF Decoupling
C36	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	3rd. Video IF Cathode
C37	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	3rd. Video IF Filament
C38	47	500	47X565	1469-00005	TCZ-47	5R5Q5	NP0L-470	MS-45	Fixed Trimmer
C39	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	RF Bypass
C40	47	500	47X565	1469-00005	TCZ-47	5R5Q5	NP0L-470	MS-45	IF Coupling
C41	1000		47X519	SI1000	D6-102	1W5D1	GP2L-102	5HK-D1	Video Det. Filament
C42	5		47X562	SI5NP0	TCZ-5		NP0K-050		Diode Load Cap.
C43	360	500	47X568	1469-00035	TCN-360		N750L-361		Fixed Trimmer
C44	68		47X599	SI68	D6-680	5R5Q7	GP1K-680	5GA-Q68	Video Coupling
C45	.047	400		P488-047	DF-503	PTE4S5		4TM-S47	Video Coupling ‡
C46	.1	600	46X403	P688-1	DF-104	PTE6P1		6TM-P1	Video Coupling
C47	.047	400		P488-047	DF-503	PTE4S5		4TM-S47	Video Coupling ‡
C48	.1	200	B65104	P288-1	DF-104	PTE4P1		2TM-P1	Picture Tube Cathode
C49	.015	600	F65153	P688-015		PTE6S15		6TM-S15	Vert. Sweep Coupling
C50	.05	600	F65503	P688-05	DF-503	PTE6S5		6TM-S5	Integrator Network
C51	1000	1000	47X569	1464-HV-001					Horiz. Sweep Coupling
C52	.25	200	B65254	P488-25		GT4P25		2TM-P25	AGC Filter
C53	.5	200	B65504	P288-5		GT2P5		2TM-P5	AGC Filter

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C54	1.5		47X584	SII-5NP0	TCZ-1.5		NP0K-1R5		Sound IF Coupling
C55	10000		47X595	BPD-01	DD-103	1D5S1	821-01	5HK-S1	AVC Filter
C56	5000		47X507	BPD-005	DD-502	1D5D5	811-005	5HK-D5	1st Sound IF Decoupling
C57	5000		47X507	BPD-005	DD-502	1D5D5	811-005	5HK-D5	RF Bypass
C58	5000		47X507	BPD-005	DD-502	1D5D5	811-005	5HK-D5	2nd Sound IF Decoupling
C59	5000		47X507	BPD-005	DD-502	1D5D5	811-005	5HK-D5	2nd Sound IF Cathode
C60	5000		47X507	BPD-005	DD-502	1D5D5	811-005	5HK-D5	2nd Sound IF Filament
C61	470	500	47X525	1469-0005	D6-471	5R5T5	GP2K-471	MS-35	RF Bypass
C62	470	500	47X525	1469-0005	D6-471	5R5T5	GP2K-471	MS-35	De-emphasis
C63	.05	600	F65503	P688-05	DF-503	PTE6S5		6TM-S5	Audio Coupling
C64	.005	600	F65502	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Tone Compensation
C65	.01	200	B65103	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C66	.05	400	D65503	P488-05	DF-503	PTE4S5		4TM-S5	AF Amp. Plate
C67	.01		†76X5	P688-01	†PC-80	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C68	.005	600	F65502	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Output Plate
C69	.05	400	D65503	P488-05	DF-503	PTE4S5		4TM-S5	Audio Output Plate
C70	.1	400	D65104	P488-1	DF-104	PTE4P1		4TM-P1	Sync. Coupling
C71 A	.002			P688-002		PTE6D2	GP2-333-202		Vert. Integrator Network
B	.005		♦76X7	P688-005	♦PC-100	PTE6D5	GP2-333-502	♦10IC1	Vert. Integrator Network
C	.005			P688-005		PTE6D5	GP2-333-502		Vert. Integrator Network
C72	4700	500	47X543	1464-005	D6-472	1DR5D5	GP2-333-472	MS-25	Vert. Osc. Grid
C73	.05	600	F65503	P688-05	DF-503	PTE6S5		6TM-S5	Vert. Discharge
C74	.25	400	D65254	P488-25		GT4P25		4TM-P25	Fixed Trimmer
C75	1000		47X519	SII000	D6-102	1W5D1	GP2L-102	5HK-D1	Horiz. Sync. Coupling
C76	1000		47X519	SII000	D6-102	1W5D1	GP2L-102	5HK-D1	Horiz. Sync. Coupling
C77	.01	400	B65103	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	AFC Filter
C78	.05	200	B65503	P288-05	DF-503	PTE4S5		2TM-S5	AFC Filter
C79	.005	600	F65502	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	AFC Filter
C80	.25	200	B65254	P488-25		GT2P25		2TM-P25	AFC Filter
C82	.05	200	B65503	P288-05	DF-503	PTE4S5		2TM-S5	Horiz. MV Grid
C82	47	500	47X565	1469-00005	TCZ-47	5R5Q5	NP0L-470	MS-45	Horiz. MV Grid
C83	330	500	47X570	1469-00035	TCN-330		N750L-331		Horiz. MV Feedback
C84	4700	500	47X543						Fixed Trimmer
C85	.25	400	D65254	P488-25		GT4P25		4TM-P25	Horiz. MV Decoupling
C86	470	500	47X525	1469-0005	TCN-470	5R5T5	N750L-471	MS-35	Horiz. Discharge
C87	620	500	RCM20B621K						Horiz. Sweep Coupling
C88	130	500	RCM20A131K	1469-00015	TCN-130	5R5T15	N750L-131		Horiz. Output Grid
C89	.05	600	F65503	P688-05	DF-503	PTE6S5		6TM-S5	Horiz. Output Screen
C90	1000		47X519	SII000	D6-102	1W5D1	GP2L-102	5HK-D1	Horiz. Sweep Coupling
C91	.03	400	D65303	P488-03		PTE6S3		6TM-S3	Horiz. Sweep Coupling
C92	.25	400	D65254	P488-25		GT4P25		4TM-P25	Horiz. Sweep Coupling
C93	.05	400	D65503	P488-05	DF-503	PTE4S5		4TM-S5	Fixed Trimmer
C94	500	20000	47X560	HV20C	TV3-502				HV Filter
C95 A	10000		76X8	BPD-01	DD-3-103	1D3S1	821-01	5HK-S1	Line Filter
B	10000			BPD-01		1D3S1	821-01	5HK-S1	Line Filter
C96	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Vert. Osc. Grid ¶

† Items C67, R64A, R64B are combined in one unit.
♦ Items C71A, C71B, C71C, R77A, R77B, R77C are combined in one unit.
‡ Some models use .05MFD in this application (Mfgrs Part # D65503).
¶ Used in series B only.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Coronado PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
				Concentrikit			
R1A	3000Ω	½		B17-1L4 # §			Contrast Control - Front
B	1Meg	½	78X6	B13-137X #			Volume Control - Tapped ② 200KΩ - Rear
C	Shaft End			E-202 #			Attach Per Instructions in Concentrikit
D	Switch			76-1 #			Attach Per Instructions in Concentrikit
R2A	25KΩ	½	40X336	QII-120	AG-40-S	B-26	Horizontal Hold Control
B	Shaft		Not Req	Not Req	KSS-3	Not Req.	Attach to R2A Per Instructions
R3A	500KΩ	½	40X333	QII-133	AG-58-S	B-59	Brightness Control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R3A Per Instructions
R4A	5000Ω	½	40X294	QII-114	AM-19-S		Vertical Linearity Control
B	Shaft		Not Req.	PQ §	RS-2 §		Attach to R4A Per Instructions
C	Bushing		Not Req.	S-3 §	59-186 §		Attach to R4A Per Instructions
R5A	2.5Meg	½	40X293	QII-239	AG-84-S	AN-83	Height Control
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Attach to R5A Per Instructions
R6	4000Ω	2	40X335				Focus Control - Wire Wound
R7A	1.5Meg	½	40X334	QII-138	AG-83-S	AN-75	Vertical Hold Control - See Note
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Attach to R7A Per Instructions
R8A	150KΩ	½	40X331		AG-52-S	B-44	Horizontal Drive Control
B	Shaft		Not Req.		FKS-1/4	Not Req.	Attach to R8A Per Instructions

Note Some models use 1Meg control in this application.
Additional parts to be used with concentrikit.
♦ When making this replacement connect a BTS-8200 (IRC) between the two terminals that are used on the contrast control.
§ Cut bushing and fashion shaft to duplicate original.

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CORONADO PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ‡ 10% UNLESS OTHERWISE SPECIFIED
R9	3900Ω	½	12A-046	BTS-3900	Antenna Coil Shunt
R10	47KΩ 20%	½	12A-039	BTS-47K	AGC Network
R11	2200Ω 20%	½	12A-049	BTS-2200	RF Amp. Decoupling
R12	10KΩ 20%	½	12A-040	BTS-10K	RF Coil Shunt
R13	4700Ω 20%	½	12A-042	BTS-4700	Mixer Grid
R14	220KΩ 20%	½	12A-041	BTS-220K	Mixer Grid
R15	15KΩ 20%	½	12A-021		Mixer Plate
R16	10KΩ	½	12A-040	BTS-10K	Osc. Grid
R17	4700Ω	½	12A-042	BTS-4700	Osc. Plate
R18	1000Ω	½	B85102	BTS-1000	AGC Network
R19	1000Ω	½	B85102	BTS-1000	AGC Network
R20	3900Ω 5%	½	B83392	BTS-3900-5%	1st Video IF Amp. Grid - See Note 8
R21	47Ω 5%	½	B83470		1st Video IF Amp. Cathode
R22	1000Ω	½	B85102	BTS-1000	1st Video IF Amp. Decoupling
R23	10KΩ 5%	½	B83103		2nd Video IF Amp. Grid - See Note 9
R24	47Ω 5%	½	B83470		2nd Video IF Amp. Cathode
R25	1000Ω	½	B84102	BTS-1000	2nd. Video IF Amp. Decoupling
R26	150Ω	½	384151	BTS-150	Decoupling
R27	15KΩ 20%	½	B83153	BTS-15K	3rd Video IF Amp. Grid - See Note 9

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CORONADO PART No.	IRC PART No.	IDENTIFICATION CODES
R28	180Ω	½	B84181	BTS-180	3rd Video IF Amp. Cathode
R29	1500Ω	½	B85152	BTS-1500	3rd. Video IF Amp. Decoupling
R30	22KΩ	½	B84223	BTS-22K	Plate Choke Shunt
R31	2700Ω 5%	1	C83272	BTA-2700-5%	Voltage Divider
R32	33KΩ	½	B84333	BTS-33K	AGC Keying Grid
R33	47KΩ	½	B84473	BTS-47K	AGC Network
R34	820KΩ	½	B84824	BTS-820K	Voltage Divider - See Note 11
R35	22KΩ	½	B84223	BTS-22K	Diode Load
R36	47KΩ	½	B84473	BTS-47K	AGC Network
R37	200KΩ 5%	½			AGC Network - See Note 10
R38	100KΩ	½	B85104	BTS-100K	AGC Network
R39	5600Ω	½	B84562	BTS-5600	Video Det Diode Load
R40	5600Ω	½	B84562	BTS-5600	1st Video Amp. Plate - See Note 4
R41	1Meg 20%	½	B85105	BTS-1Meg	2nd Video Amp. Grid
R42	100Ω	½	B84101	BTS-100	2nd Video Amp. Cathode
R43	4700Ω 5%	1	C83472	BTA-4700	2nd Video Amp. Plate
R44	10KΩ 5%	½	B83103	BTS-10K-5%	Isolation
R45	1Meg 20%	½	B85105	BTS-1Meg	DC Restorer Diode Load
R46	2200Ω 20%	½	B85222	BTS-2200	Vert. Retrace Blanking Network
R47	47KΩ	½	B84473	BTS-47K	Voltage Divider
R48	100KΩ	½	B85104	BTS-100K	Picture Tube Grid
R49	22KΩ	½	B84223	BTS-22K	Picture Tube Cathode
R50	100KΩ	½	B84104	BTS-100K	Picture Tube Cathode
R51	100Ω	½	B84101	BTS-100	1st. Sound IF Amp. Cathode
R52	1000Ω	½	B84102	BTS-1000	1st. Sound IF Amp. Decoupling
R53	180Ω	½	B84181	BTS-180	2nd. Sound IF Amp. Cathode
R54	1000Ω	½	B84105	BTS-1000	2nd. Sound IF Amp. Decoupling
R55	5600Ω	½	B84562	BTS-5600	Ratio Det. Diode Load
R56	5600Ω	½	B84562	BTS-5600	Ratio Det. Diode Load
R57	120Ω	½	B84121	BTS-120	Balancing
R58	68KΩ	½	B84683	BTS-68K	De-emphasis
R59	470KΩ	½	B84474	BTS-470K	AVC Network
R60	100KΩ	½	B84104	BTS-100K	AVC Network See Note 2
R61	68KΩ	½	B84683	BTS-68K	Tone Compensation
R62	10Meg 20%	½	B85106	BTS-10Meg	AF Amp. Grid
R63	47KΩ	½	B84473	BTS-47K	AF Amp. Plate Decoupling
R64A	500KΩ	½	76X5 †	BTS-470K	AF Amp. Plate
B	500KΩ	½		BTS-470K	Output Grid
R65	390Ω	1	C84391	BTA-390	Output Cathode
R66	1000Ω	2	D84102	BTB-1000	Output Decoupling
R67	10KΩ	½	B84103	BTS-10K	Isolation
R68	1Meg 20%	½	B85105	BTS-1Meg	Sync. Amp. Grid
R69	22KΩ	½	B84223	BTS-22K	Sync. Amp. Cathode
R70	12KΩ	½	B84123	BTS-12K	Sync. Amp. Plate
R71	2200Ω	½	B84222	BTS-2200	Isolation
R72	47KΩ	½	B84473	BTS-47K	Sync. Sep. Cathode
R73	820KΩ	½	B84824	BTS-820K	Sync. Sep. Plate
R74	3300Ω 5%	½	B83332	BTS-3300-5%	Sync. Phase Inv. Cathode
R76	3300Ω 5%	½	B83332	BTS-3300-5%	Sync. Phase Inv. Plate
R76	3300Ω 5%	½	B83332	BTS-3300-5%	Sync. Phase Inv. Plate
R77A	22KΩ	½	76X7 ♦	BTS-22K	Integrator
B	8200Ω	½		BTS-8200	Integrator
C	8200Ω	½		BTS-8200	Integrator
R78	1Meg	½	B84105	BTS-1Meg	Vert. Osc. Grid - See Note 12
R79	1.5Meg	½	B84155	BTS-1.5Meg	Vert. Osc. Plate
R80	4700Ω 5%	½	B83472	BTS-4700-5%	Vert. Peaking
R81	1.8Meg	½	B84185	BTS-1.8Meg	Vert. Output Grid
R82	820Ω	½	B84821	BTS-820	Vert. Output Cathode
R83	6800Ω	2	D84682	BTB-6800	Decoupling
R84	470KΩ	½	B84474	BTS-470K	Bleeder
R85	470KΩ	½	B84474	BTS-470K	Bleeder
R86	100KΩ	½	B84104	BTS-100K	Horiz. Phase Det. Diode Load
R87	100KΩ	½	B84104	BTS-100K	Horiz. Phase Det. Diode Load
R88	4.7Meg 20%	½	B85475	BTS-4.7Meg	Horiz. Phase Det. Diode Load
R89	27KΩ	½	B84273	BTS-27K	Horiz. Phase Det. Diode Load
R90	15KΩ	1	C84153	BTA-15K	Horiz. Feedback
R91	470KΩ	½	B84474	BTS-470K	Horiz. AFC Filter
R92	33KΩ	½	B84333	BTS-33K	Horiz. AFC Filter
R93	1200Ω	½	B84122	BTS-1200	Horiz. MV Cathode
R94	5600Ω	½	B84562	BTS-5600	Horiz. MV Plate
R95	82KΩ	½	B84823	BTS-82K	Horiz. MV Grid
R96	180KΩ	½	B84184	BTS-180K	Horiz. MV Plate
R97	47KΩ 20%	½	B84473	BTS-47K	Horiz. MV Decoupling
R98	10KΩ	½	B84103	BTS-10K	Horiz. Peaking
R99	150Ω	½	B84151		Parasitic Suppressor
R100	1Meg	½	B84105	BTS-1Meg	Horiz. Output Grid
R101	150Ω	5	43X263	1 3/4A-150	Horiz. Output Cathode - Wire Wound
R102	7500Ω	15	43X256	2D-7500	Horiz. Output Screen - Wire Wound
R103	5.1Ω	½	43X239	BW-½-5.1	HV Rectifier Filament - Wire Wound
R104	1Meg 20%	1	C85105		HV Filter
R105	10KΩ	5	43X247	1 3/4A-10K	Bleeder - Wire Wound
R106	1500Ω	15	43X261	2D-1500	Voltage Divider - Wire Wound
R107	500Ω	10	43X245	1 3/4A-500	Voltage Divider - Wire Wound - See Note 6
R108	1500Ω	15	43X261	2D-1500	Focus Coil Shunt - Wire Wound - See Note 7
R109	2.2Meg	½		BTS-2.2Meg	Voltage Divider - See Note 2
R110	180KΩ	½		BTS-180K	Voltage Divider - See Note 2
R111	470KΩ	½		BTS-470K	Vert. Osc. Coil Shunt - See Note 3

† Items R64A, R64B, and C67 are combined into one unit.
♦ Items R77A, R77B, R77C, C71A, C71B, and C71C are combined into one unit.
Note 2 Not used in all models.
Note 3 Some models use 220KΩ resistor in this application.
Note 4 Some models use parallel resistors in this application to obtain desired value.
Note 5 In models not employing a Focus Coil R108 becomes a Filter resistor.
Note 6 Some models use 250Ω resistor in this application.
Note 7 Some models use 1000Ω resistor in this application.
Note 8 Some models use 8200Ω resistor in this application.
Note 9 Some models use 22KΩ resistor in this application.
Note 10 Some models use 390KΩ resistor in this application.
Note 11 Some models use 3.9Meg resistor in this application.
Note 12 Some models use 1.5Meg resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA CORONADO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ② 2.1A	750VCT .250ADC	5VAC ② 3A	6.3VAC ② 8A	53X318		P-3059	

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA CORONADO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	200Ω	1.15KΩ	54X7	A-8122 ①	A-3000 ①	TBO-2 ①	Vert. Block Osc. Trans.
T3	185Ω	10.5Ω	53X319		HV0-7 and		Horiz. Output Trans.
	Tap 12Ω	Taps .4Ω			MWC-1		
		3.4Ω and					
		5Ω					
		SEC. 2					
		4.9Ω					
		SEC. 3					
		0Ω					
T4	1KΩ		51X151	A-8122 ①	A-3-37 ①	TSO-5 ①	Vert. Output Trans.
	Tap 12Ω						
T5A	18Ω		9A2194	DY-7	MDF-70		Horiz. Deflection Coils
B	50Ω						Vert. Deflection Coils
T6	820Ω		9A-2189				Focus Coil
			9A2220 ②				

① Drill one new mounting hole
② Use with series B models.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA CORONADO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T7	5.5KΩ	3.2Ω	465Ω	.2Ω	51X150	A-3823 ①	A-2930	RO-9 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS FIELD. RES.	RATINGS V. C. IMP.	REPLACEMENT DATA CORONADO PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1	PM	3.2Ω	12A502	12J12	12A4A	
	CONE DIA.	V. C. DIA.				
SP2	11 3/8"	1"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 v=)	REPLACEMENT DATA CORONADO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.250A	52Ω	2 Henries	52X88	C-2326	C-2991	TR-3300 ①	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA Coronado PART No.	MEISSNER PART No.	NOTES
L2	Ant. Coils	0Ω	0Ω	9A2119		Channel #2
L3	Fil. Choke	0Ω				
L4	RF Mixer Grid and Osc. Coil	0Ω		9A2131		Channel #2
L5	Fil. Choke	0Ω				
L6	1st Video IF	.7Ω		31A-095		
L7	Fil. Choke	0Ω		9A2033		
L8A	2nd Video IF	.3Ω		9A2165		Includes Trap (Some models do not use trap)
B	2nd Video IF			9A2225		Models 15TV2-43-9025B and 9026B
L9	Fil. Choke	0Ω		9A2033		
L10A	3rd Video IF	.3Ω		9A2166		Includes Trap (Some models do not use trap)
B	3rd Video IF			9A2225		Models 15TV2-43-9025B and 9026B
L11	Fil. Choke	0Ω		9A2033		
L12	Sound Trap	0Ω	.1Ω	9A2169		Not used in all models.
L13	RF Choke	2.8Ω		9A1979		
L14A	4th Video IF	.2Ω		9A2167		Includes Trap.
B	4th Video IF			9A2226		Models 15TV2-43-9025B and 9026B
L15	Peaking	10Ω		36A1	19-1920	100 Microhenries (yellow dot)
L16	Peaking	35Ω		36A5		750 Microhenries (green dot)
L17	Peaking	16Ω		36A7	19-1921 †	190 Microhenries Wound on 22KΩ Resistor (orange dot)
L18	Peaking	16Ω	36A4	36A4	19-1922 ▲	215 Microhenries Wound on 2.2KΩ Resistor (red dot)
L19	4.5MC Trap	.3Ω		9A2074		
L20	Peaking	15Ω		36A8	19-1921 §	185 Microhenries Wound on 47KΩ Resistor (brown dot)
L21	Peaking	15Ω		36A2	19-1921	190 Microhenries (white dot)
L22	1st Sound IF	2.8Ω		9A2168		
L23	2nd Sound IF	2.8Ω	2.8Ω	9A2170		
L24	Ratio Det. Trans.	2.8Ω	.3Ω	9A2171		Tap .8Ω
L25	Horiz. Osc.	50Ω		9A2096		
L26	Width Coil			9A2183		
L27	Horiz. Lin.	4.4Ω		9A2172		Tap 1.5Ω

† Parallel with 22KΩ Resistor
▲ Parallel with 2.2KΩ Resistor
§ Parallel with 47KΩ Resistor

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

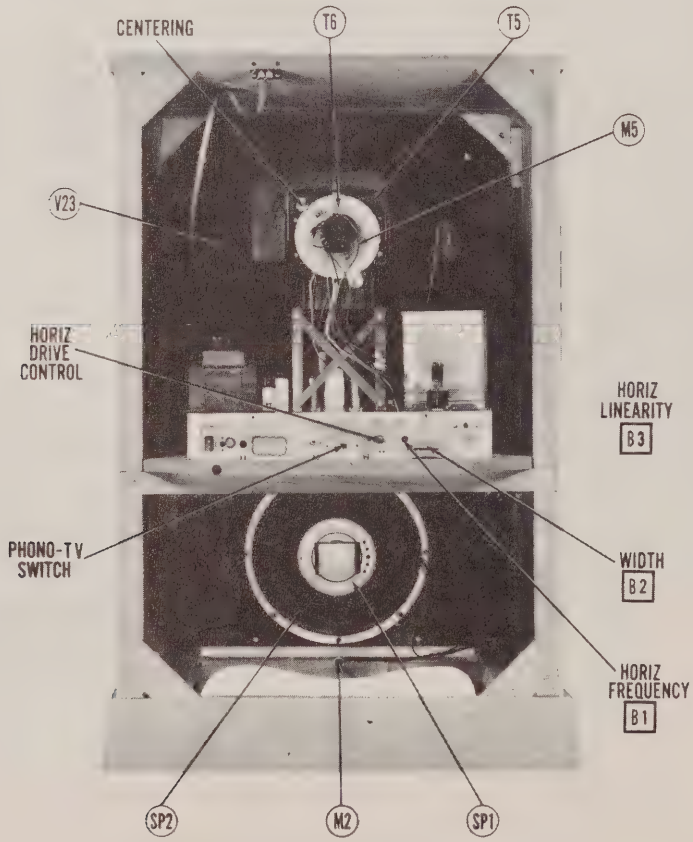
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			CORONADO PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG Slo Blo	.250A	16X147	16X146	313.250	357001	

DIAL LIGHTS

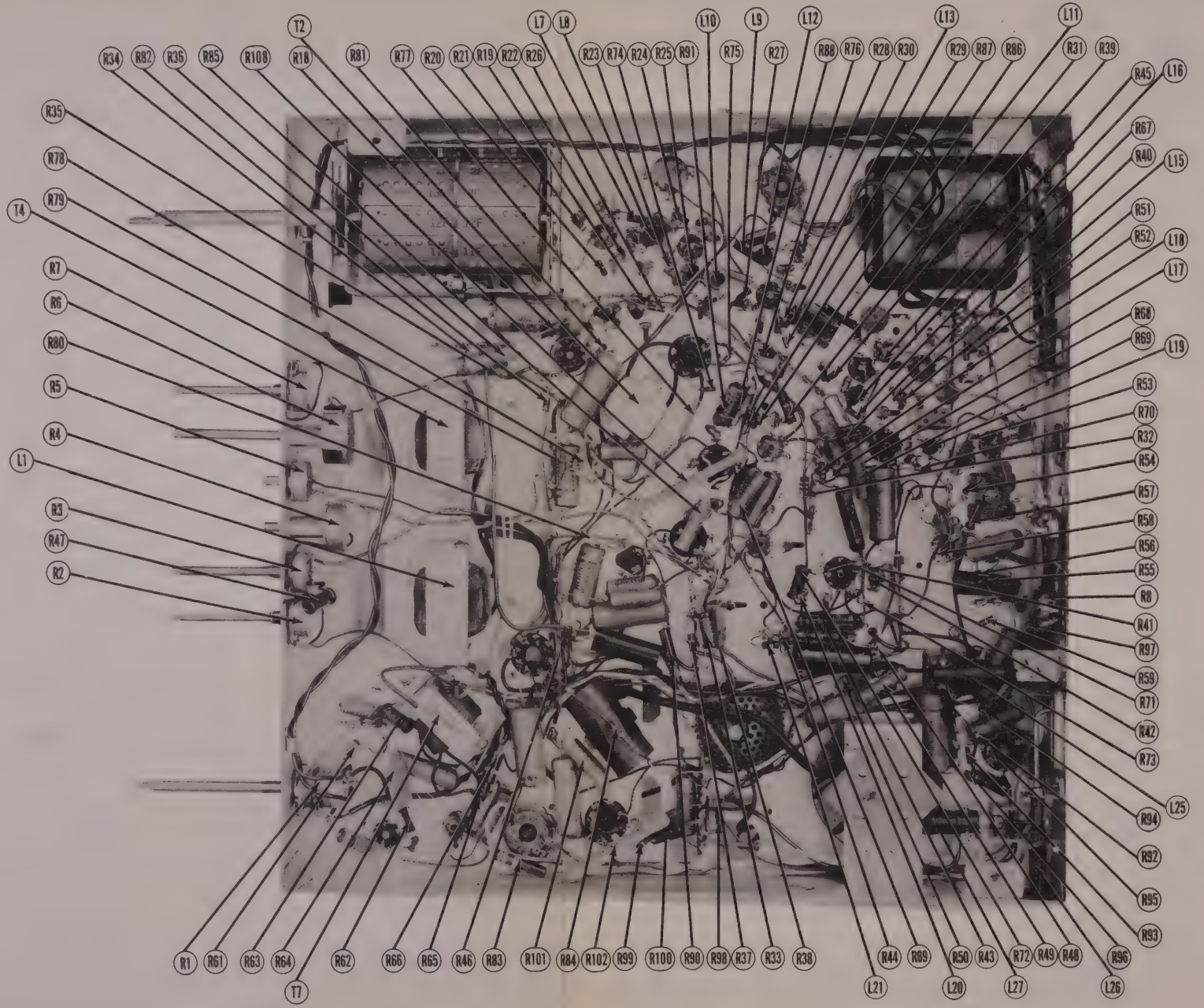
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					CORONADO PART No.		
M2	Bayonet	75	.2	White	7A230		Type # 51

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M3	RF Tuner	25A1086	
M4	Switch	2A402	TV-Phono
M5	Ion Trap	2A407	
	Ant. Coil	9A2120	Channel # 3
		9A2121	Channel # 4
		9A2122	Channel # 5
		9A2123	Channel # 6
		9A2124	Channel # 7
		9A2125	Channel # 8
		9A2126	Channel # 9
		9A2127	Channel # 10
		9A2128	Channel # 11
		9A2129	Channel # 12
		9A2130	Channel # 13
	RF Mix. Grid and Osc. Coil	9A2132	Channel # 3
		9A2133	Channel # 4
		9A2134	Channel # 5
		9A2135	Channel # 6
		9A2136	Channel # 7
		9A2137	Channel # 8
		9A2138	Channel # 9
		9A2139	Channel # 10
		9A2140	Channel # 11
		9A2141	Channel # 12
		9A2142	Channel # 13

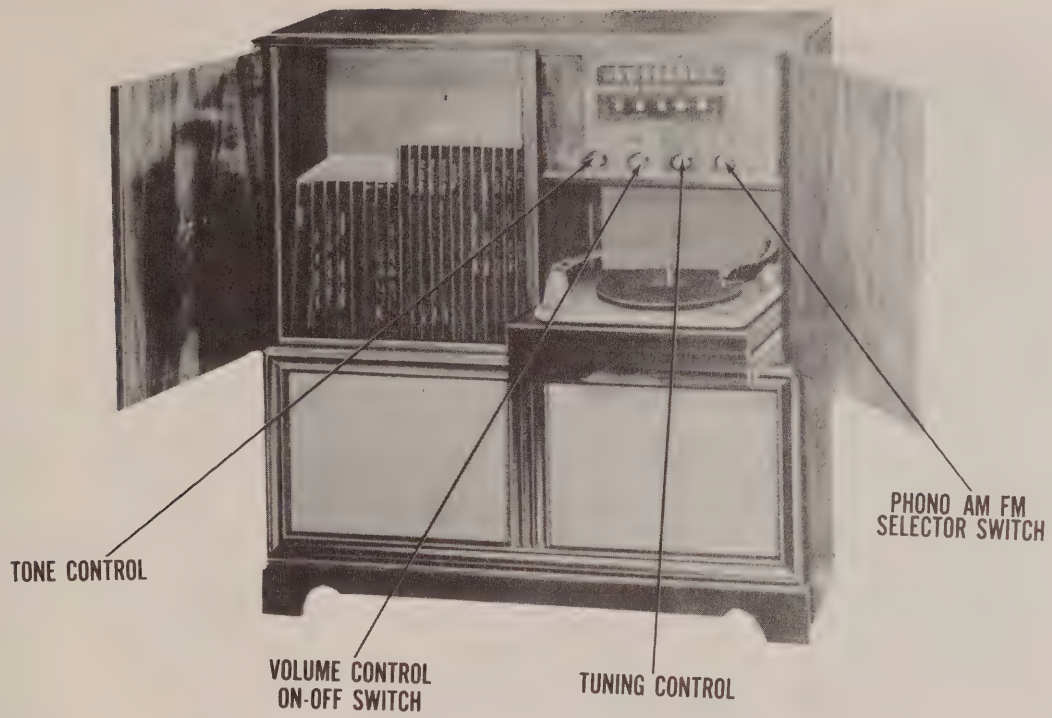


CABINET-REAR VIEW



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

FIRESTONE
MODELS 4-A-86 (Late), 4-A-95

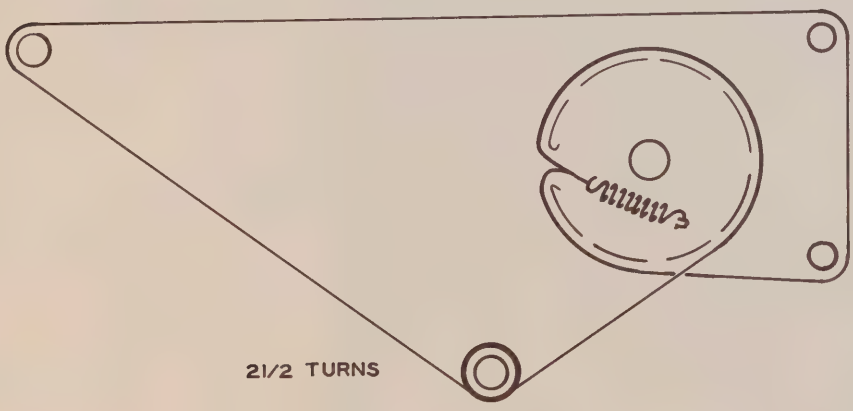


FIRESTONE
MODELS 4-A-86 (Late), 4-A-95

TRADE NAME	Firestone, Models 4-A-86 (Late) 4-A95
SUPPLIER	Firestone Tire & Rubber Co., Akron, Ohio
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Ant.
TUBES (NINE)	Types 6AB4 FM RF Amp., 6AB4 FM Mixer, 6BE6 FM Osc.-AM Conv., 6BA6 1st. IF Amp. 6BA6 2nd. FM IF Amp., 6AL5 Ratio DET., 6AV6 DET.-AVC-AF, 6V6GT Power Output, 6X5GT Rectifier
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST 540-1600KC	RATING .35 Amp. @ 117 Volts AC FREQ. MOD. 88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER SEE VM MODEL 950 IN PHOTOFACT SET 107 FOLDER 13 OR RECORD CHANGER MANUAL CM-3.

TUNING GANG FULLY CLOSED



DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis 1, Indiana

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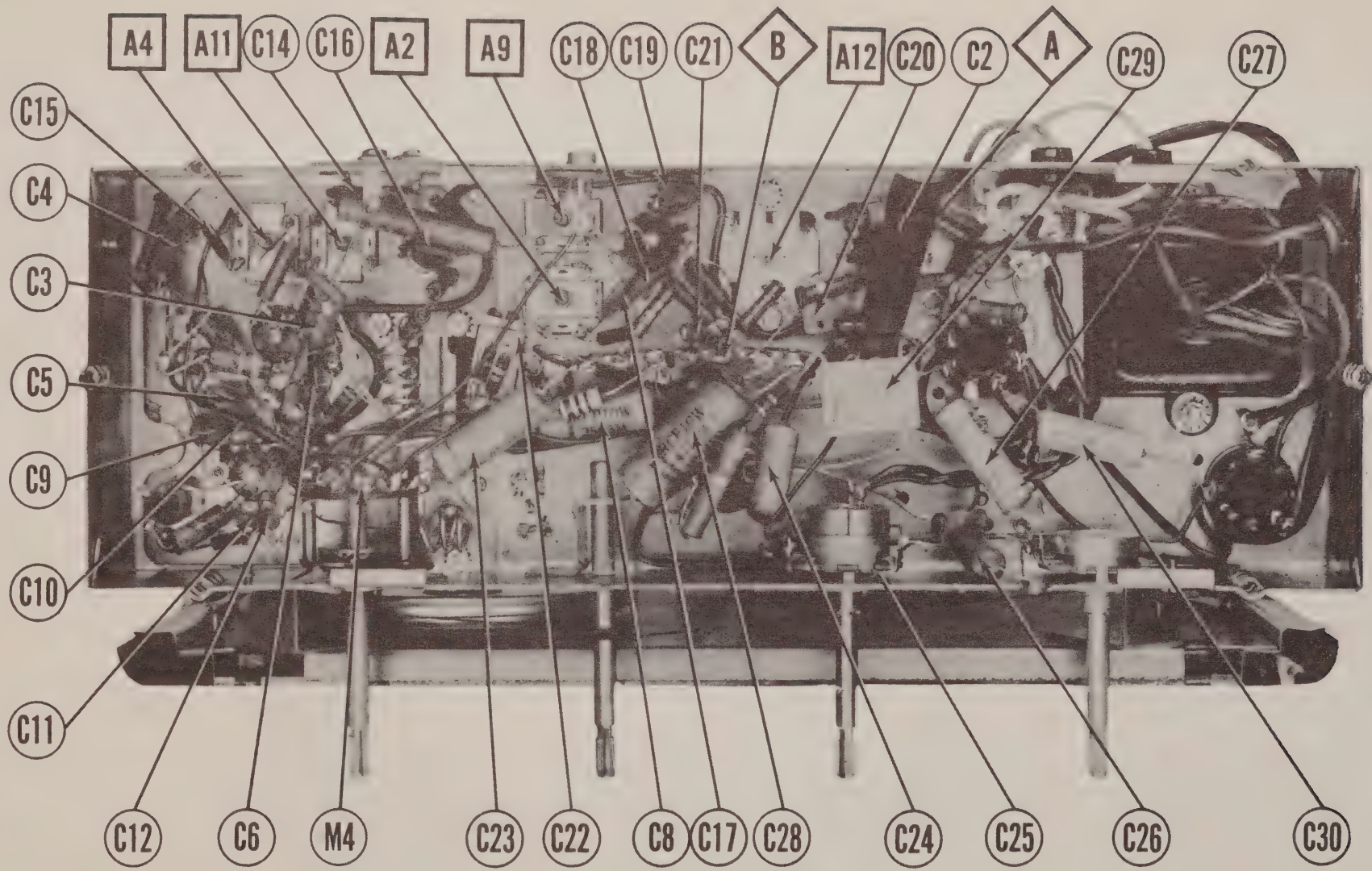
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A11
C14
C16
A2
A9
C18
C19
C21
B
A12
C20
C2
A
C29
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C4
C3
C5
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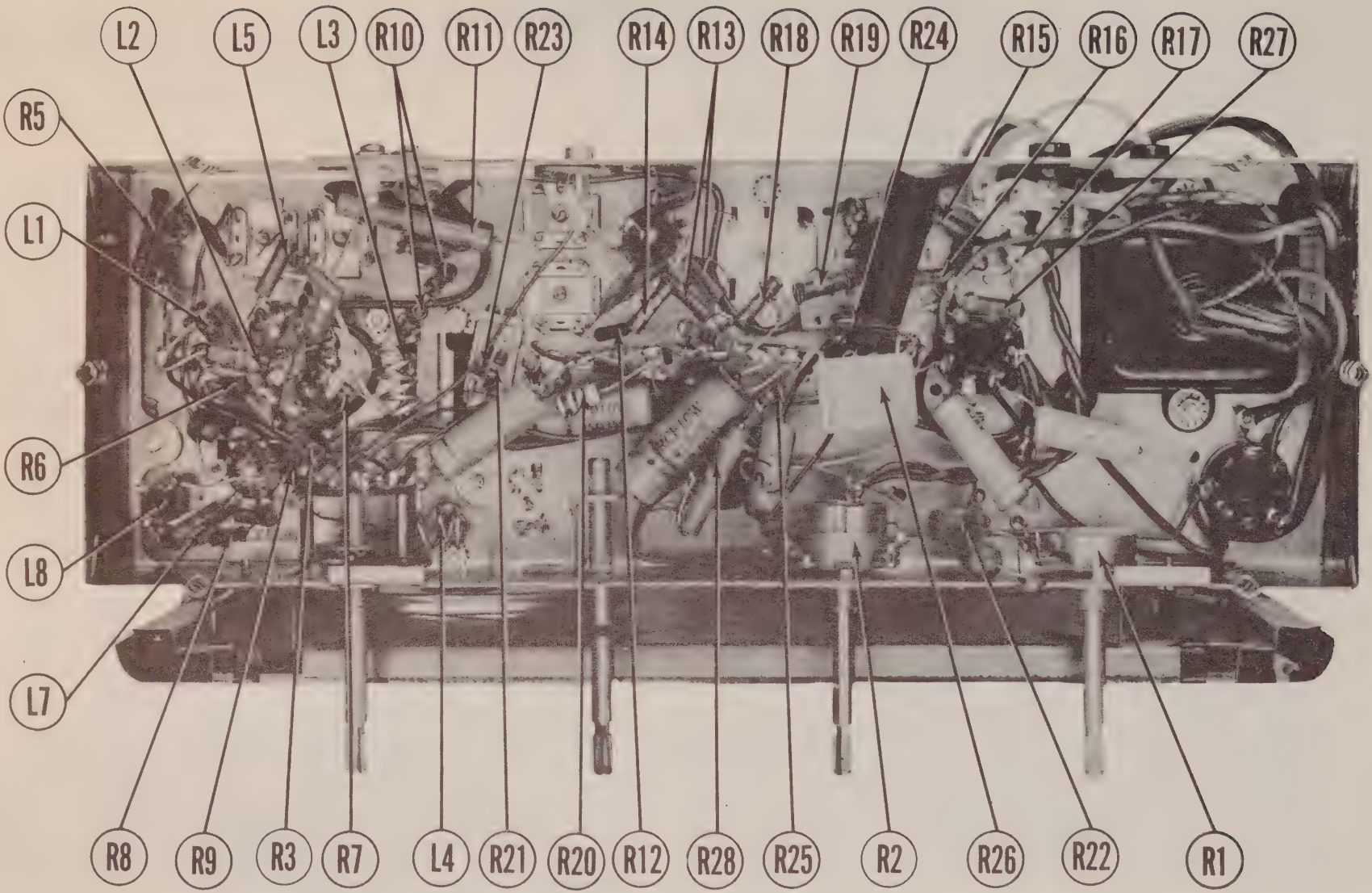
C24
C25
C26
C30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R11
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L1
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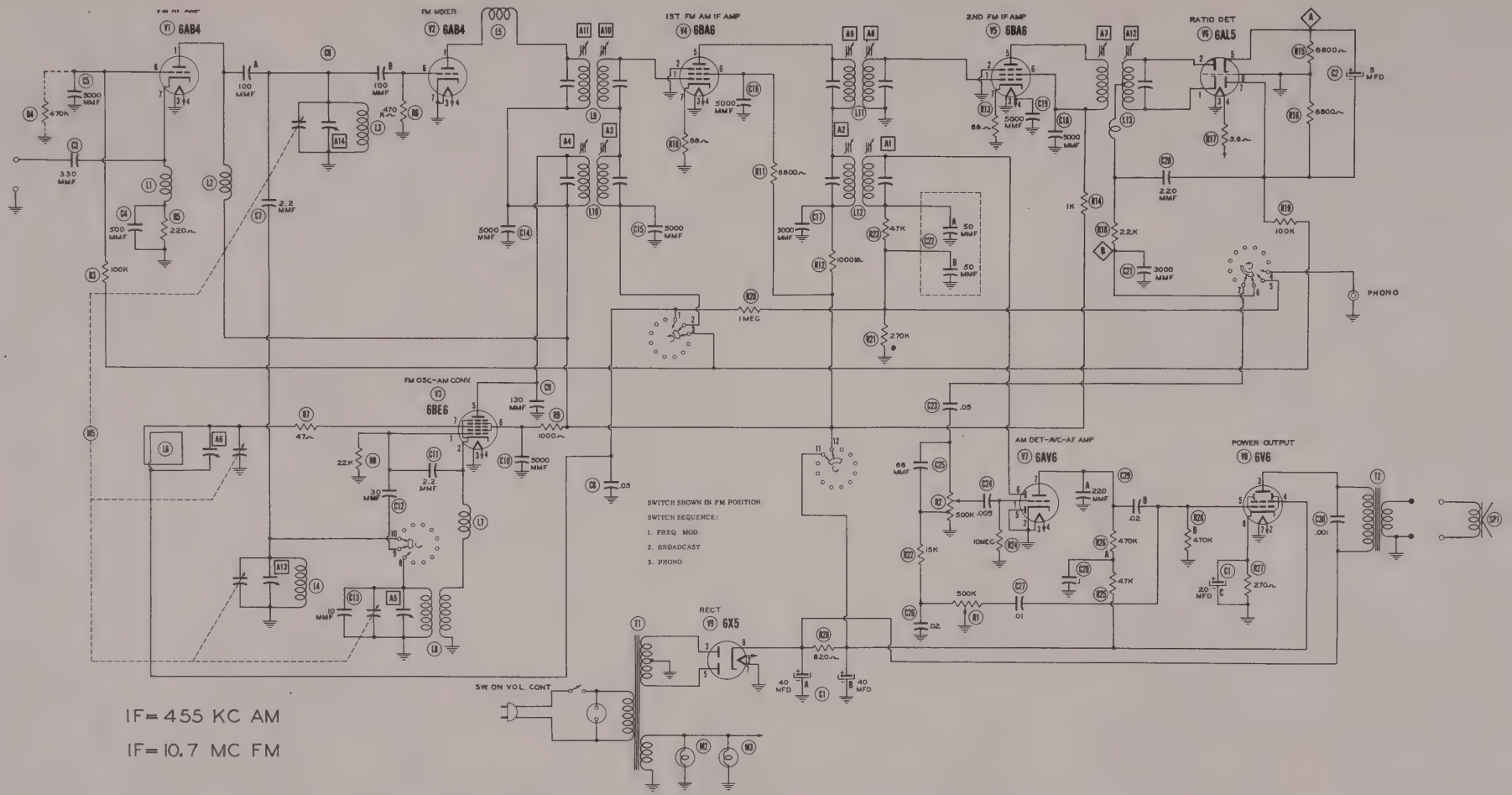
R1



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6AB4	110VDC	0V	0V	6.3VAC	0V	-.2VDC	.8VDC	
V 2	6AB4	110VDC	0V	0V	6.3VAC	0V	‡-2VDC	0V	
V 3	6BE6	‡+2.8VAC	0V	0V	6.3VAC	110VDC	105VDC	+-.4VDC +-.2VDC	
V 4	6BA6	.2VDC	0V	0V	6.3VAC	100VDC	90VDC	.7VDC	
V 5	6BA6	0V	0V	0V	6.3VAC	95VDC	95VDC	1VDC	
V 6	6AL5	0V	0V	0V	6.3VAC	.2VDC	0V	-.2VDC	
V 7	6AV6	-.5VDC	0V	0V	6.3VAC	0V	+-5.3VDC ‡-2.6VDC	52VDC	
V 8	6V6GT	0V	6.3VAC	140VDC	115VDC	0V	0V	0V	5VDC
V 9	6X5GT	0V	0V	155VAC	0V	155VAC	0V	6.3VAC	150VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6AB4	†820Ω	0Ω	0Ω	.1Ω	Inf.	206KΩ	230Ω	
V 2	6AB4	†820Ω	0Ω	0Ω	.1Ω	Inf.	470KΩ	0Ω	
V 3	6BE6	23KΩ =.106KΩ +1.3Meg	2.3Ω	0Ω	.1Ω	†830Ω	†1.8KΩ	†1.8KΩ	1.3Meg
V 4	6BA6	0Ω	0Ω	0Ω	.1Ω	†1.8KΩ	†7.6KΩ	68Ω	
V 5	6BA6	.9Ω	0Ω	0Ω	.1Ω	†1.8KΩ	†1.8KΩ	68Ω	
V 6	6AL5	Inf.	Inf.	0Ω	2Ω	6.8KΩ	0Ω	6.8KΩ	
V 7	6AV6	10Meg	0Ω	0Ω	.1Ω	0Ω	317KΩ	†317KΩ	
V 8	6V6GT	Inf.	.1Ω	†440Ω	†820Ω	470KΩ	.5Ω	0Ω	270Ω
V 9	6X5GT	Inf.	0Ω	115Ω	Inf.	115Ω	Inf.	.1Ω	50KΩ

ALL MEASUREMENTS TAKEN IN AM AND FM SWITCH POSITION
- MEASURED IN FM SWITCH POSITION
+ MEASURED IN AM SWITCH POSITION
† MEASURED FROM PIN 8 OF V9

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning gang fully closed and set pointer to the index marks at the low frequency end of the dial.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD.	High side to pin 7 (Grid) of 6BE6, (V3) Low side to chassis.	455KC (400∿ Mod.)	AM (center)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1620KC	"	"	"	A5	"
3.		Loop	1400KC	"	Tune for max. output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	2500MMF.	High side to pin 1 (Grid) of 6BA6 (V4). Low side to chassis.	10.7MC (unmod.)	FM (CW)	Tuning gang fully closed.	DC probe to point Ⓐ. Common to chassis.	A7, A8, A9	Adjust for maximum deflection.
5.	"	High side to pin 6, (Grid) of 6AB4, (V2). Low side to chassis.	"	"	"	"	A10, A11	"
6.	"	"	"	"	"	DC probe to Point Ⓑ. Common to chassis.	A12	Adjust for zero reading A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
4.	2500MMF.	High side to pin 1 (Grid) of 6BA6, (V4) Low side to chassis.	10.7MC (450KC SWP)	FM (CW)	Point of non-interference	Vert. Amp. to Point Ⓐ. Common to chassis.	A7, A8, A9	Disconnect stabilizor capacitor C2. Adjust for maximum amplitude and symmetry as per fig. 1
5.	"	High side to pin 6 (Grid) of 6AB4, (V2) Low side to chassis.	"	"	"	"	A10, A11	"
6.	"	"	"	"	"	"	A12	Reconnect capacitor C2. Adjust A12 so 10.7MC occurs at center of crossover lines as per fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	300Ω carbon resistor	High side thru 300Ω to ungrounded "FM" ant. terminal. Low side to chassis.	108.5MC (unmod.)	FM	Tuning gang fully closed.	DC probe to Point Ⓐ. Common to chassis.	A13	Adjust for maximum deflection.
8.	"	"	104.5MC	"	Tune for max. deflection	"	A14	"

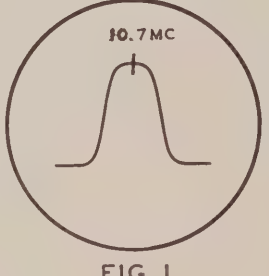


FIG. 1

FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		FIRESTONE PART No.	STANDARD REPLACEMENT		
V1	FM RF Amp.	6AB4	6AB4	5CE	
V2	FM Mixer	6AB4	6AB4	5CE	
V3	FM Osc. -AM Conv.	6BE6	6BE6	7CH	
V4	1st. FM-AM-IF Amp	6BA6	6BA6	7BK	
V5	2nd. FM IF Amp.	6BA6	6BA6	7BK	
V6	Ratio Detector	6AL5	6AL5	6BT	
V7	AM Det.-AVC-AF	6AV6	6AV6	7BT	
V8	Power Output	6V6GT	6V6GT	7AC	
V9	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	200	45X360	AF88G4D		UP42125C		TVL-4470	▪ Filter
B	40	150							■ Filter
C	20	25							▲ Output Cathode
C2	5	100	45X361	PRS150/4		BR415		TVA-1402	Stabilizing Cap.
C3	330	100	47X470	1468-00035	D6-331	5R5T3	GP2K-331	1FM-335	FM Ant. Coupling
C4	500		47X508	SI500	D6-501	5W5T5	GP2K-501	19C32	FM RF Amp. Cathode
C5	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	FM RF Amp. Grid
C6A	100		76X4	SI100	D6-101	5W5T1	GP1K-101	19C11	RF Coupling
B	100			SI100	D6-101	5W5T1	GP1K-101	19C11	RF Coupling
C7	2.2		47X557		TCZ-2.2		NP0K-2R2		FM Osc. Coupling
C8	.05	200	B66503	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C9	130		47X559		TCN-130		N750L-131		Fixed Trimmer
C10	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	Osc. Anode Bypass
C11	2.2		47X557		TCZ-2.2		NP0K-2R2		Osc. Feedback
C12	30		47X558		TCN-30		N750K-131		Osc. Grid Cap.
C13	10		47X523	SI10NP0	TCZ-10		NP0K-100	19C3	Fixed Trimmer
C14	5000	47	47X507	BPD-005	DD-502	1D5D5	811-005	29C1	AM Conv. Plate
C15	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	AVC Filter
C16	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	1st. IF Screen
C17	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	1st. IF Plate
C18	5000		47X507	BPD-005	DD-502	1D5D5	811-005	29C1	2nd. FM IF Decoupling
C19	5000		47X507	BPD-005	DD-502	1D5D5	811-0052	29C1	2nd. FM IF Fil.
C20	220	500	47X468	1469-00025	D6-221	5R5T25	GP2K-221	1FM-325	Diode Load Cap.
C21	3000								De-emphasis †
C22A	50		47X112	SI50	D6-500	5W5Q5	GP1K-500	19C28	Diode RF Filter
B	50			SI50	D6-500	5W5Q5	GP1K-500	19C28	Diode RF Filter
C23	.05	200	B66503	P288-05	DF-503	PTE4S5		2TM-35	Audio Coupling
C24	.005	400	D66502	P688-05	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C25	68	500	47X471	1469-00007	D6-680	5W5Q7	GP1K-680	MS-47	Tone Comp.
C26	.01	200	B6C103	P488-01	DF-103	PTE4S1		2TM-S1	Tone Comp.
C27	.01	200	B66103	P488-01	D6-103		GP2-333-103	4TM-S1	Tone Comp.
C28	.1	400	D66104	P488-1	DF-104	PTE4P1		4TM-P1	Decoupling
C29A	220		♦	SI220	PC80 ♦	5R5T2	GP2K-221	19C13	AF Amp. Plate
B	.02			P688-02		PTE652		6TM-S2	Audio Coupling
C30	.001	800	H66102	P1088-001		PTE16D1		MB-D1	Output Plate

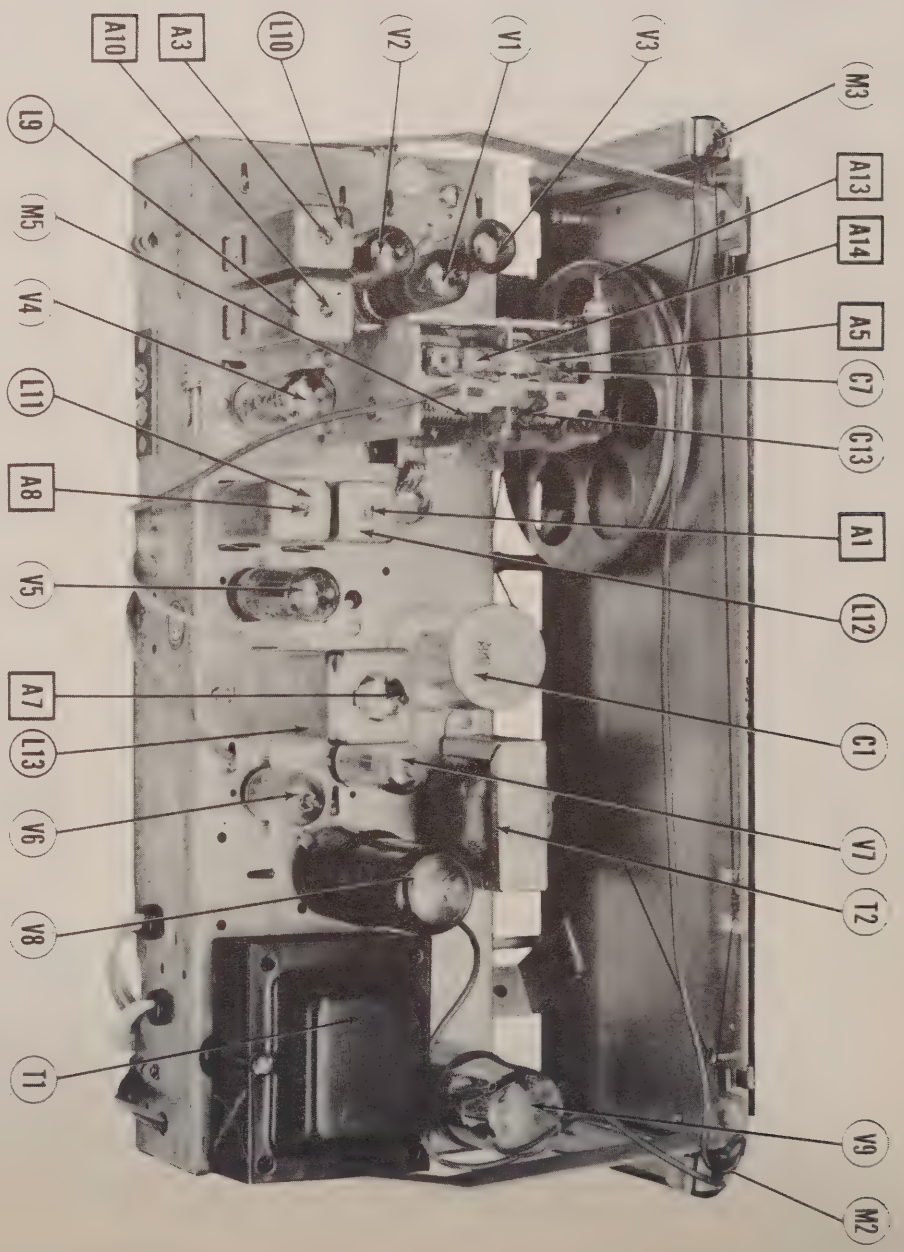
† Some models use 2700MMF Mfgrs. Part # 47X492 in this application.
♦ Items C29A, C29B, R26A, R26B, are combined in one unit.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	FIRESTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½	40X310	Q13-133	AG-60-4	BSK-60	Tone Control
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R1A per instructions
R2A	500KΩ	½	36X372	Q13-133X	AK-80	BTSK-66-S	Volume control - Tapped @ 80KΩ
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R2A per instructions
C	Switch		Not req.	76-1	SWB	Not req.	Attach to R2A per instructions

SET 144
FOLDER 4

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	FIRESTONE PART No.	IRC PART No.	
R3	100KΩ	½	B85104	BTS-100K	AVC Network
R4	470KΩ	½	B85474	BTS-470K	FM RF Amp. Grid - See Note 1
R5	220Ω	½	B84221	BTS-220	FM RF Amp. Cathode
R6	470KΩ	½	B85474	BTS-470K	FM Mixer Grid
R7	47Ω	½	B85470		Parasitic Suppressor
R8	22KΩ	½	B85223	BTS-22K	Osc. Grid
R9	5600Ω	½	B85562	BTS-5600	Osc. Anode
R10	68Ω	½	B84680		1st. IF Amp. Cathode - See Note 3
R11	6800Ω	2	B84682	BTB-6800	1st. IF Amp. Screen
R12	1000Ω	½	B85102	BTS-1000	1st. IF Amp. Plate Decoupling
R13	68Ω	½	B84680		2nd. FM IF Amp. Cathode - See Note 3
R14	1000Ω	½	B85102	BTS-1000	2nd. FM IF Amp. Decoupling
R15	6800Ω	½	B84682	BTS-6800	Ratio Det. Diode Load
R16	6800Ω	½	B84682	BTS-6800	Ratio Det. Diode Load
R17	3.6Ω	½	43X233	BW-½-3.6	Ratio Det. Diode Filament - Wire Wound
R18	22KΩ	½	B85223	BTS-22K	De-emphasis - See Note 2
R19	100KΩ	½	B85104	BTS-100K	AVC Network
R20	1Meg	½	B85105	BTS-1Meg	AVC Network
R21	270KΩ	½	B84274	BTS-270K	AVC Network
R22	15KΩ	½	B85153	BTS-15K	Tone Compensation
R23	47KΩ	½	B85473	BTS-47K	Diode Filter - See Note 4
R24	10Meg	½	B85106	BTS-10Meg	AF Amp. Gird
R25	47KΩ	½	B85473	BTS-47K	AF Amp. Plate Decoupling
R26A	470KΩ	½	♦	BTS-470K	AF Amp. Plate
B	470KΩ	½		BTS-470K	Output Grid
R27	270Ω	½	B84271	BTS-270	Output Cathode
R28	820Ω	2	D84821	BTB-820	Filter

♦ Items R26A, R26B, C29A, and C29B are combined into one unit.

Note 1 Not used in all models.

Note 2 Some models use 27KΩ resistor in this application.

Note 3 Some models use series resistors in this application to obtain desired value.

Note 4 May be part of C22 A and B in some sets.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ④ .35A	300VCT .067ADC	6.3VAC ④ 3A		53X322	PM8419 ①	P-3051 ①	PH-70 ②

① Add series resistor to reduce plate voltage.

② Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.6KΩ	3.2Ω	440Ω	.85Ω	51X134	A-3877 ③	A-2930 ③	R0-9 ③	③ Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	FIRESTONE PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	3.2Ω	12A480	10J12	10A4A	
	CONE DIA.	V.C. DIA.				
SP2	9 3/8"	1"				

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	FIRESTONE PART No.	MEISSNER PART No.	IRC PART No.	
L1	RF Choke	.22Ω		35A9		CLA	.47 Microhenry
L2	RF Choke	3Ω		35A8		CLA	3.3 Microhenries
L3	FM RF Coil	0Ω		9A2066			
L4	FM Osc. Coil	0Ω		9A2067			
L5	Parasitic Supp.	3Ω		9A2103			
L6	Loop Ant.	1.4Ω	.1	9A2146			
L7	RF Choke	1.8Ω		35A5		CLA	2.2 Microhenries
L8	AM Osc. Coil	.5Ω	5.2Ω	9A2065			
L9	1st. FM IF	.9Ω	.9Ω	9A2060			
L10	1st. AM IF	13Ω	15Ω	9A2062			
L11	2nd. FM IF	.9Ω	.9Ω	9A2061			
L12	2nd. AM IF	13Ω	14.8Ω	9A2063			
L13	Disc. Trans.	1.2Ω	.1Ω	9A2161			Tap .3Ω

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								REMARKS
	FIRESTONE PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1A		AC-AG-J	A-AG	W26B	A66U	33	O-2 or S-2	

ASTATIC, SHURE, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA		REMARKS
	FIRESTONE PART No.	WALCO PART No.	
M1B	85-35	W-30AGA	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					FIRESTONE PART No.		
M2	Bayonet	6-8	.15	Brown	7A103		Type #47
M3	Bayonet	6-8	.15	Brown	7A103		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M4	Switch	2A393	AM-FM-Phono
M5	2 Gang Var. Cap.	12A209	(19-522MMF, 38-220MMF)
A6	Trimmer	17A256	Ant. Adj.
	Knob	10A759	Mahogany
	Knob	10A765	White Oak
	Dial Glass	58X739	
	Dial Pointer	15X251	

PHOTOFACT* Folder

*TRADE MARK

HOFFMAN MODELS
638, 639, (Ch. 180)

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MODEL 638

HOFFMAN MODELS
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DATE 9-51 SET 144 FOLDER 5

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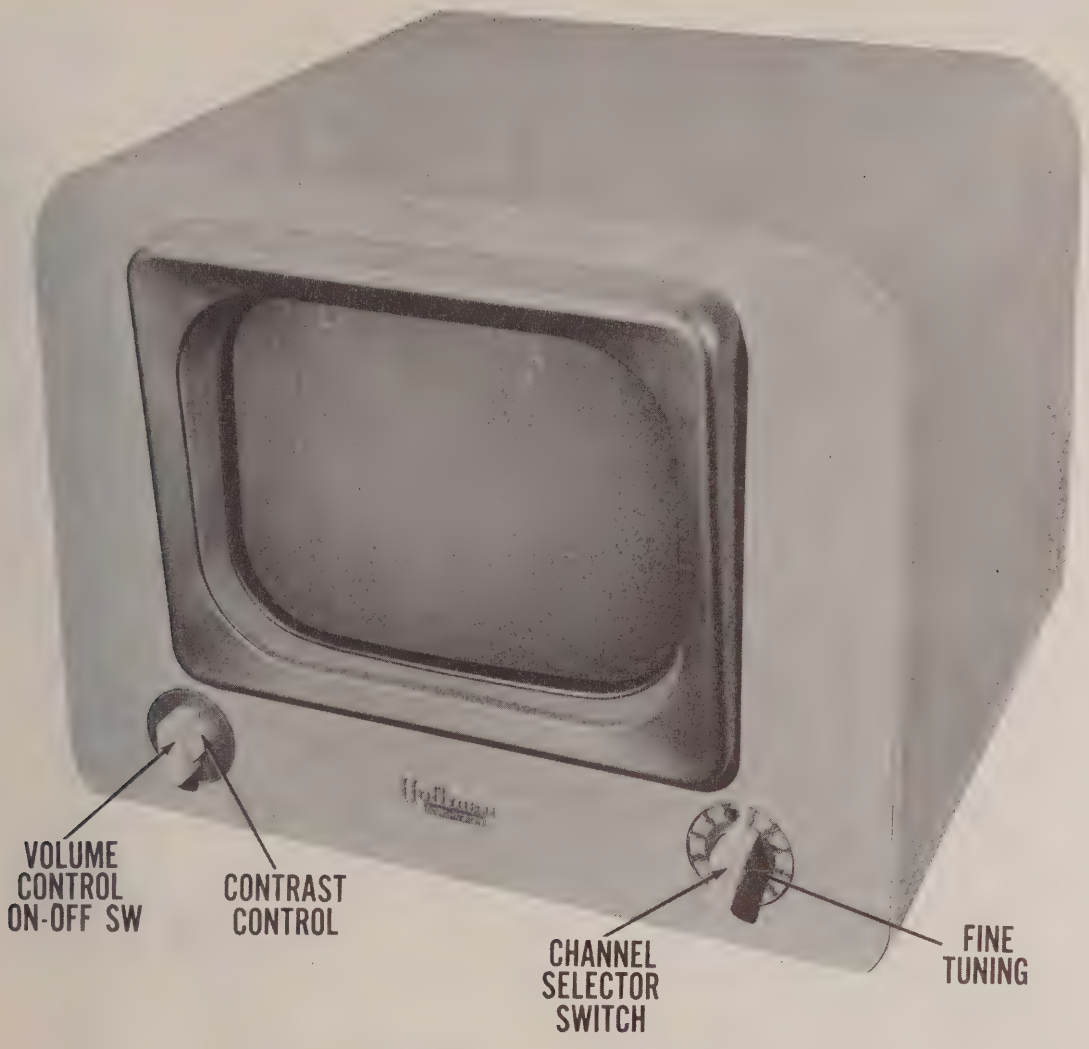

HOFFMAN MODELS 638, 639, (Ch. 180)

HOFFMAN MODEL 638

TRADE NAME	Hoffman, Models 638, 639 (Ch. 180)
MANUFACTURER	Hoffman Radio Corp., 3761 S. Hill St., Los Angeles, Calif.
TYPE SET	Television Receiver
TUBES	Twenty-two
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING 2.1 Amp. at 117 Volts AC
TUNING RANGE—CHANNELS	2 thru 13

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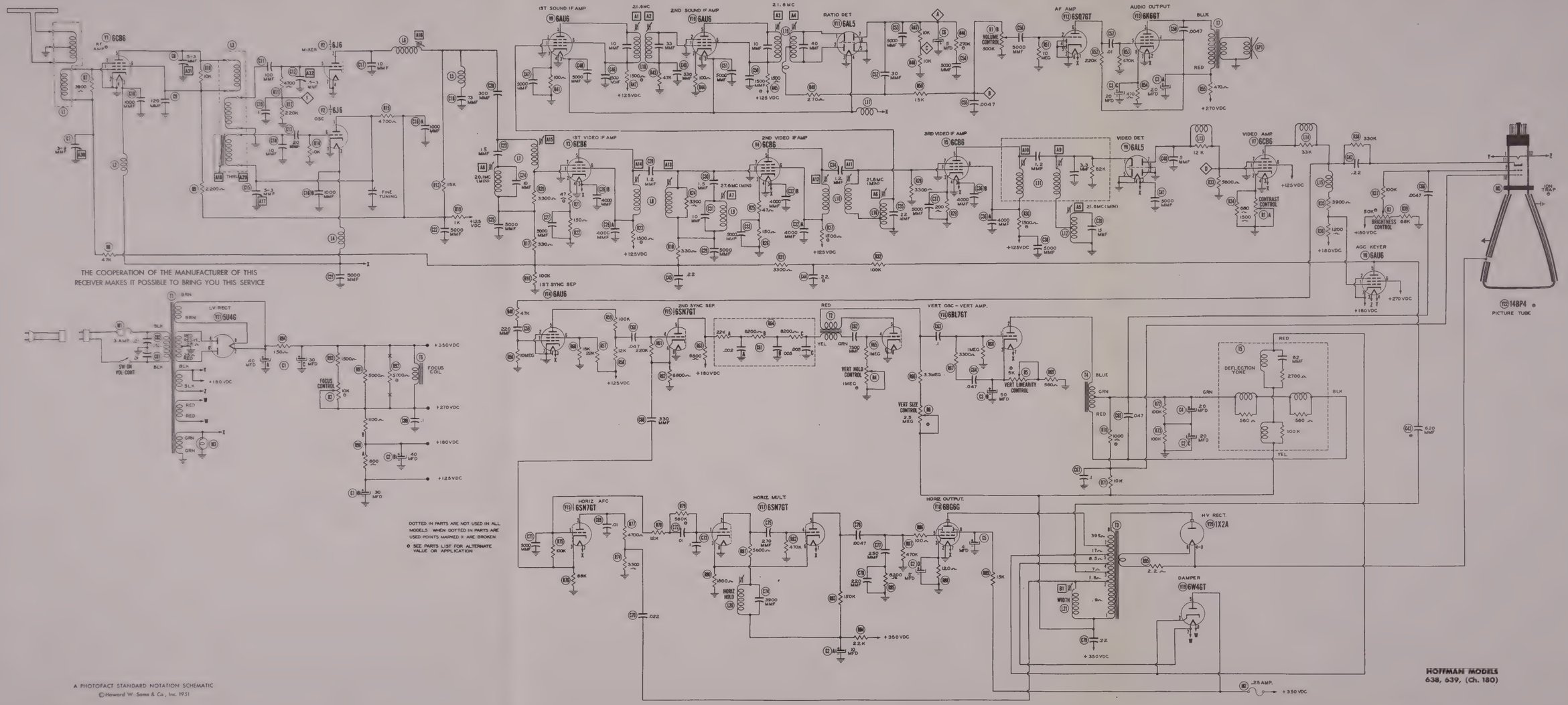
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A PHOTOFACT STANDARD NOTATION SCHEMATIC
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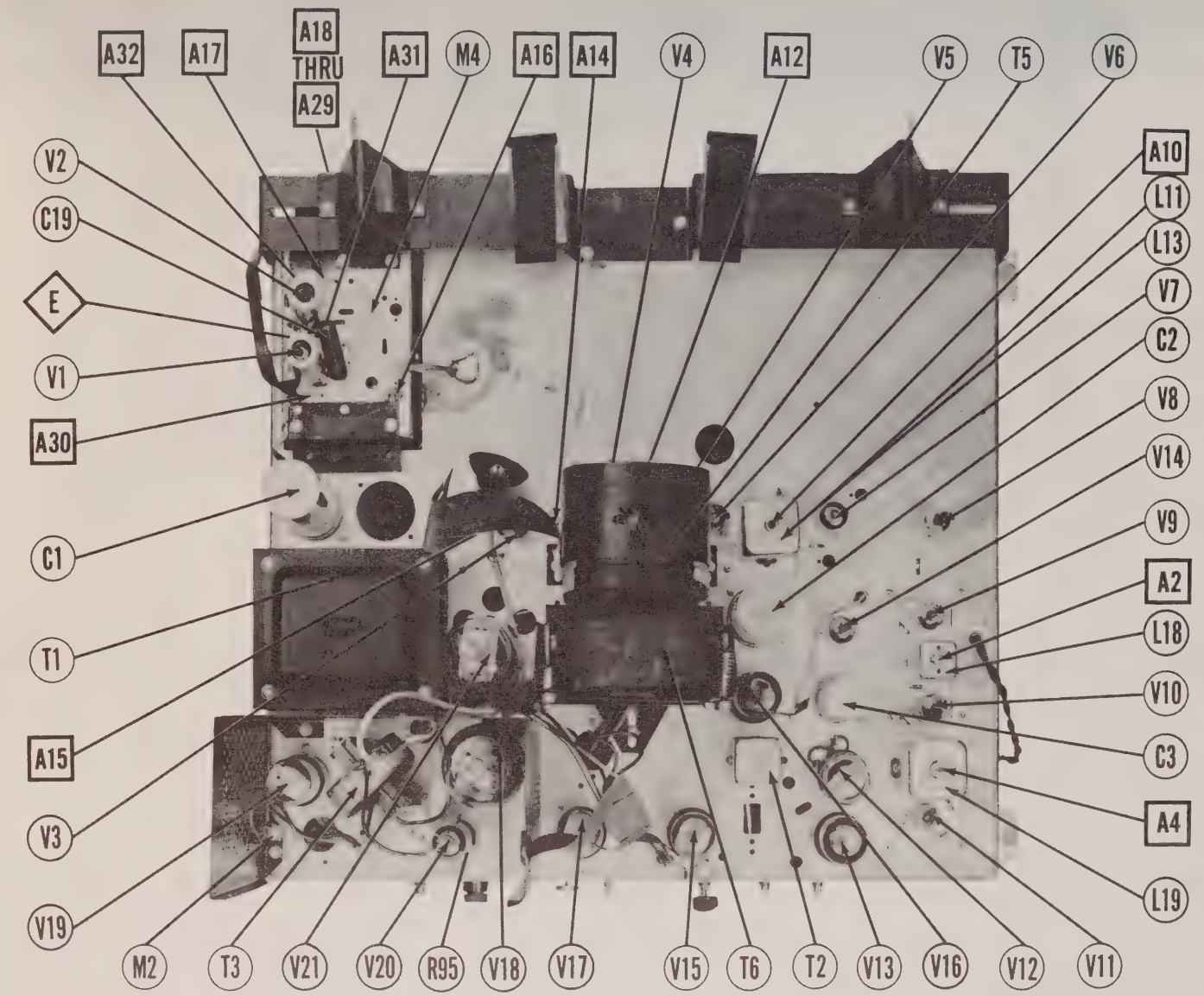
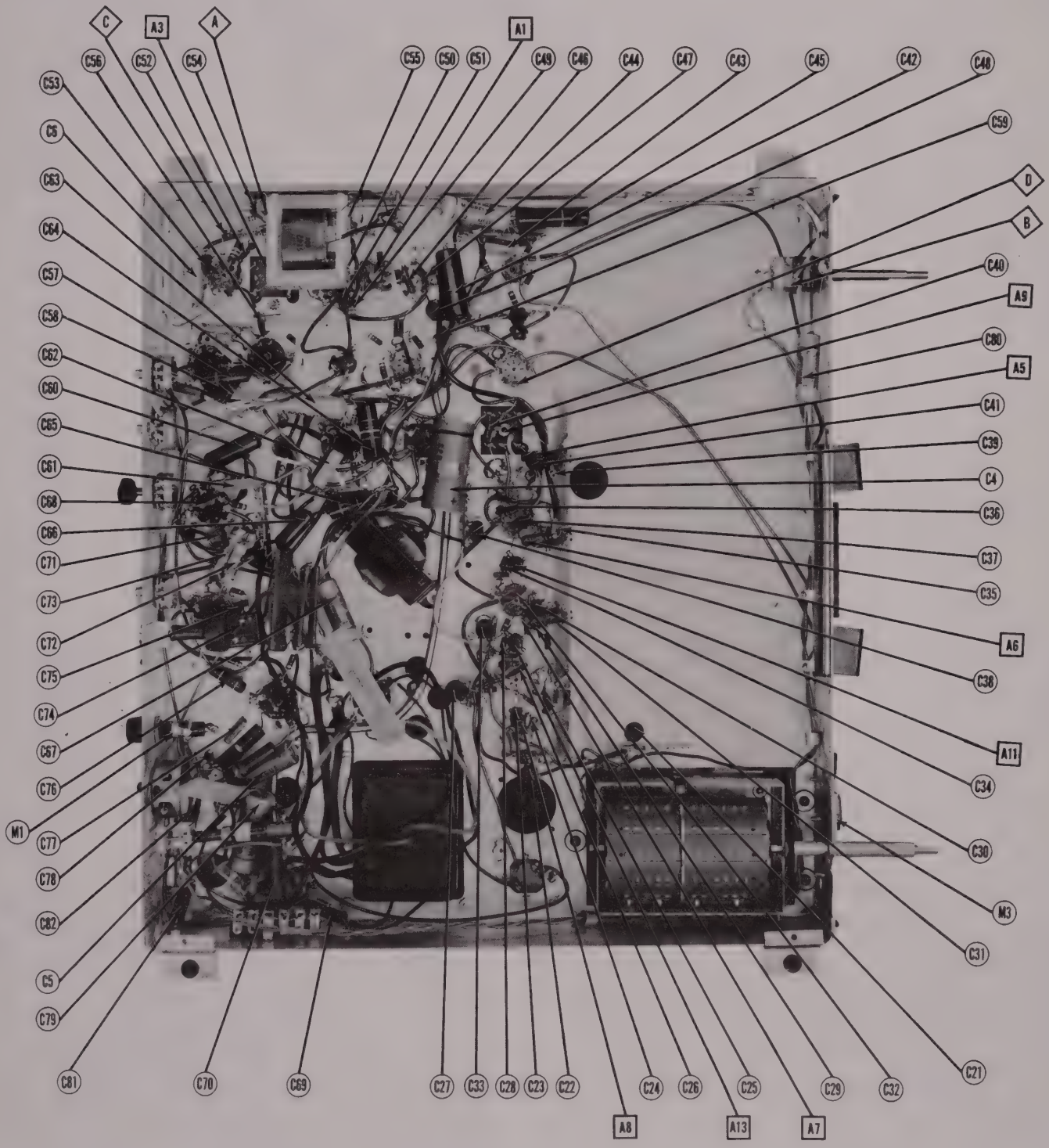
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
HOFFMAN MODELS 638, 639, (Ch. 180)

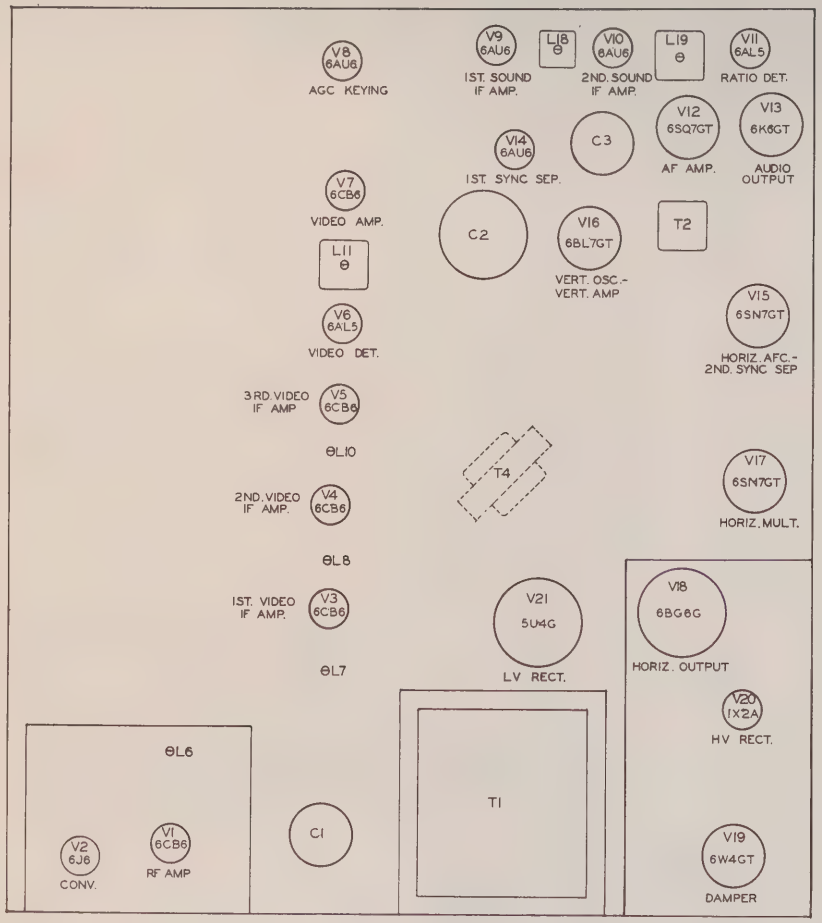
HOFFMAN MODELS 638, 639 (Ch. 180)



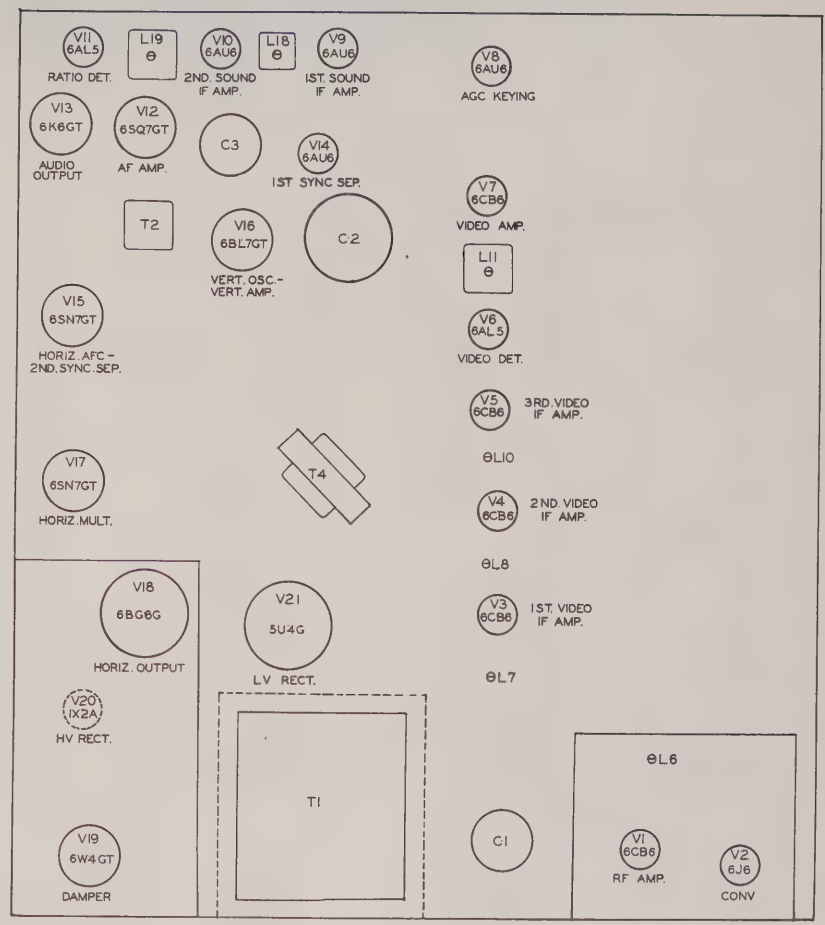
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

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638, 639 (Ch. 180)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V17), from its socket.
Remove the converter tube, (V2), from its socket and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded lead of C45, connect the positive lead to chassis.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.005MFD	High side to pin 1 (Grid) of 6AU6, (V9). Low side to chassis.	21.6MC (Unmod.)	Any	DC probe to point A . Common to chassis.	A1, A2, A3	Adjust for maximum deflection.
2.	"	"	"	"	DC probe to point B . Common to point C .	A4	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct reading.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.005MFD	High side to pin 1, (Grid) of 6AU6, (V9). Low side to chassis.	21.6MC (450KCSWP)	21.6MC	Any	Vert. Amp. to point A . Low side to chassis.	A1, A2, A3	Disconnect stabilizor capacitor C6. Adjust for maximum amplitude and symmetry as per fig. 1.
2.	"	"	"	"	"	"	A4	Reconnect capacitor C6. Adjust A4 so 21.6 MC occurs at center of crossover lines as per fig. 2. SLIGHTLY retouch A3 for maximum amplitude and straightness of crossover lines.

TRAP ADJUSTMENTS

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
3.	.005MFD	High side to pin 1, (Grid) of 6CB6, (V3). Low side to chassis.	21.6MC (Unmod.)	Any	DC probe to point A . Low side to chassis.	A5, A6	Adjust for MINIMUM deflection.
4.	"	"	27.6MC	"	"	A7	"
5.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	20.1MC	"	"	A8	"

VIDEO IF ALIGNMENT

During each step of video IF alignment, short the primary of the transformer feeding the tube to which the sweep generator is connected.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.005MFD	High side to pin 1, (Grid) of 6CB6, (V5). Low side to chassis.	24.25MC (10MCSWP)	24.25MC	Any	Vert. Amp. to point D . Low side to chassis.	A9, A10	Adjust for maximum amplitude and symmetry as per fig. 3.
7.	"	High side to pin 1 (Grid) of 6CB6 (V4). Low side to chassis.	"	"	"	"	A11, A12	"
8.	"	High side to pin 1 (Grid) of 6CB6, (V3). Low side to chassis.	"	"	"	"	A13, A14	"
9.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	"	21.6MC 26.1MC	"	"	A15, A16	Adjust for response curve similar to Fig. 4.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A17. It should be noted that this is an all channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A17 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustments for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead	215.75MC (unmod.)	13	DC probe to Point B . Common to Point C .	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			209.75MC	12		A19	
			203.75MC	11		A20	
			197.75MC	10		A21	
			191.75MC	9		A22	
			185.75MC	8		A23	
			179.75MC	7		A24	
			87.75MC	6		A25	
			81.75MC	5		A26	
			71.75MC	4		A27	
			65.75MC	3		A28	
			59.75MC	2		A29	

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

Reduce the bias to 1½ volts.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MCSWP)	205.25MC 204.75MC	12	Vert. Amp. thru 10KΩ to point E . Low side to chassis.	A30, A31, A32	Adjust for response curve similar to fig. 5 with markers above 90%.
12.	"	"	213MC (10MCSWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to fig. 5. If markers fall below 70% on any channel, make compromise adjustment of A30, A31, and A32 with channel switch set for that channel. Recheck all channels to see that they have not been sertously effected.
			201MC (10MCSWP)	199.25MC 203.75MC	11			
			195MC (10MCSWP)	193.25MC 197.75MC	10			
			189MC (10MCSWP)	187.25MC 191.75MC	9			
			183MC (10MCSWP)	181.25MC 185.75MC	8			
			177MC (10MCSWP)	175.25MC 179.75MC	7			
			85MC (10MCSWP)	83.25MC 87.75MC	6			
			79MC (10MCSWP)	77.25MC 81.75MC	5			
			69MC (10MCSWP)	67.25MC 71.75MC	4			
			63MC (10MCSWP)	61.25MC 65.75MC	3			
			57MC (10MCSWP)	55.25MC 59.75MC	2			

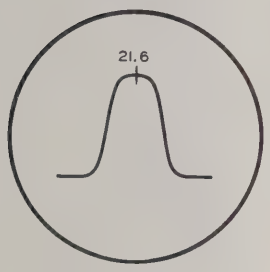


FIG. 1

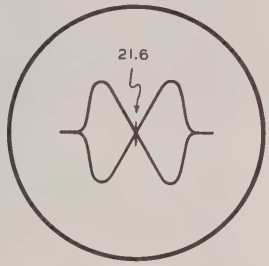


FIG. 2

FIG. 3

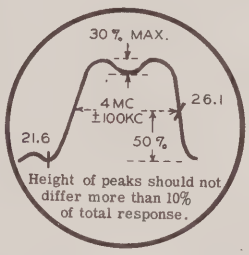


FIG. 4

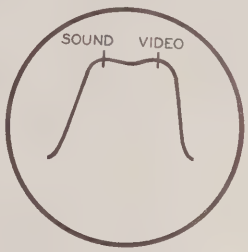


FIG. 5

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	-.6VDC	0V	6.3VAC	0V	80VDC	80VDC	0V		
V 2	6J6	75VDC	65VDC	6.3VAC	0V	-1.4VDC	§-3.4VDC	0V		
V 3	6CB6	-.2VDC	.8VDC	6.3VAC	0V	110VDC	110VDC	0V		
V 4	6CB6	-.2VDC	.8VDC	6.3VAC	0V	110VDC	110VDC	0V		
V 5	6CB6	0V	2.1VDC	6.3VAC	0V	110VDC	110VDC	0V		
V 6	6AL5	0V	0V	6.3VAC	0V	0V	0V	-.4VDC		
V 7	6CB6	-.4VDC	2.1VDC	6.3VAC	0V	160VDC	125VDC	0V		
V 8	6AU6	175VDC	180VDC	▲6.3VAC	▲0V	-.6VDC	270VDC	180VDC		
V 9	6AU6	0V	0V	6.3VAC	0V	110VDC	110VDC	.9VDC		
V 10	6AU6	0V	0V	6.3VAC	0V	120VDC	120VDC	0V		
V 11	6AL5	-.6VDC	-.6VDC	0V	6.3VAC	0V	0V	-1.2VDC		
V 12	6SQ7GT	0V	-.5VDC	0V	0V	0V	115VDC	6.3VAC	0V	
V 13	6K6GT	0V	6.3VAC	240VDC	250VDC	0V	270VDC	0V	17VDC	
V 14	6AU6	-1.2VDC	0V	6.3VAC	0V	105VDC	57VDC	0V		
V 15	6SN7GT	-.1VDC	-.3VDC	2VDC	7.7VDC	130VDC	56VDC	6.3VAC	0V	
V 16	6BL7GT	§.3VDC	450VDC	12VDC 36VDC	§-21VDC	75VDC 110VDC	0V	6.3VAC	0V	
V 17	6SN7GT	§-.5VDC	215VDC	8.5VDC	§-11.4VDC	135VDC	8.5VDC	6.3VAC	0V	
V 18	6BG6G	-25VDC	0V	10VDC	-25VDC	-25VDC	240VDC	6.3VAC	255VDC	Top Cap *
V 19	6W4GT	0V	0V	590VDC	590VDC	350VDC	590VDC	590VDC	590VDC	
V 20	1X2A	* DO NOT MEASURE								Top Cap *
V 21	5U4G	0V	380VDC	0V	350VAC	180VDC	350VAC	0V	380VDC	
V 22	14BP4	▲0V	105VDC 175VDC	PIN 10 460VDC	PIN 10 150VDC	PIN 12 ▲6.3VAC	H. V. CONNECTOR ** 9.5KV			

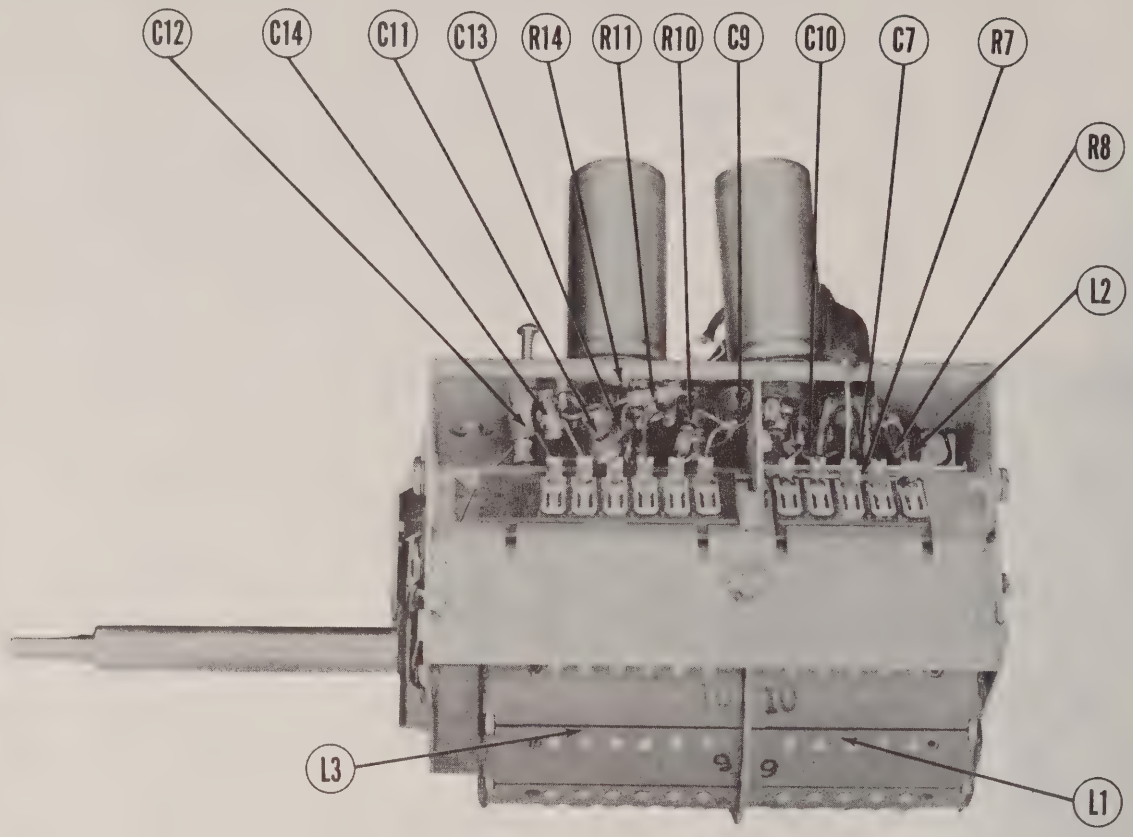
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
FOCUS CONTROL FULLY COUNTER-CLOCKWISE
▲ MEASURED FROM 180VDC LINE
§ TAKEN WITH VACUUM TUBE VOLTMETER
* DO NOT MEASURE
** USE EXTREME CAUTION WHEN MEASURING THIS VOLTAGE

RESISTANCE READINGS

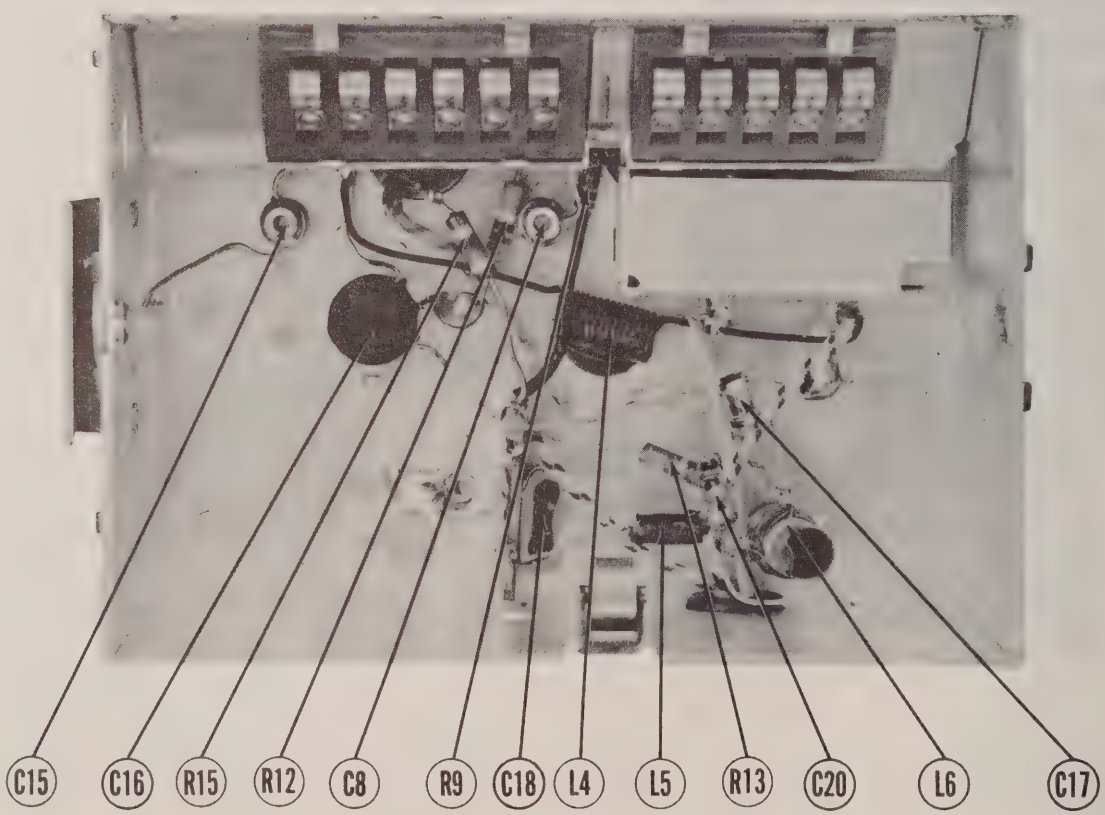
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	147KΩ	0Ω	.1Ω	0Ω	†5.9KΩ	†5.9KΩ	0Ω		
V 2	6J6	†8.4KΩ	†18KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	100KΩ	200Ω	.1Ω	0Ω	†4.2KΩ	†4.2KΩ	0Ω		
V 4	6CB6	100KΩ	200Ω	.1Ω	0Ω	†4.2KΩ	†4.2KΩ	0Ω		
V 5	6CB6	.3Ω	200Ω	.1Ω	0Ω	†4.2KΩ	†4.2KΩ	0Ω		
V 6	6AL5	.4Ω	0Ω	.1Ω	0Ω	0Ω	0Ω	5.6KΩ		
V 7	6CB6	5.6KΩ	465Ω	.1Ω	0Ω	†7KΩ	†2.7KΩ	0Ω		
V 8	6AU6	†3.1KΩ	†1.9KΩ	▲.1Ω	▲0Ω	200KΩ	†850Ω	†1.9KΩ		
V 9	6AU6	0Ω	0Ω	.1Ω	0Ω	†4.2KΩ	†4.2KΩ	100Ω		
V 10	6AU6	47KΩ	0Ω	.1Ω	0Ω	†4.2KΩ	†4.2KΩ	100Ω		
V 11	6AL5	515KΩ	515KΩ	0Ω	.1Ω	0Ω	0Ω	20KΩ		
V 12	6SQ7GT	0Ω	10Meg	0Ω	0Ω	0Ω	†220KΩ	.1Ω	0Ω	
V 13	6K6GT	Inf.	.1Ω	†1.7KΩ	†1.3KΩ	470KΩ	†850Ω	0Ω	470Ω	
V 14	6AU6	10Meg	0Ω	.1Ω	0Ω	†114KΩ	12KΩ	0Ω		
V 15	6SN7GT	168KΩ	8KΩ	68KΩ	220KΩ	†8.7KΩ	6.8KΩ	.1Ω	0Ω	
V 16	6BL7GT	1Meg	#11KΩ	5.5KΩ 560Ω	2Meg 1Meg	#5.8Meg #3.3Meg	0Ω	.1Ω	0Ω	
V 17	6SN7GT	650KΩ	†27KΩ	1.6KΩ	470KΩ	†170KΩ	1.6KΩ	.1Ω	0Ω	
V 18	6BG6G	470KΩ	0Ω	120Ω	470KΩ	470KΩ	†22KΩ	.1Ω	†15KΩ	Top Cap #18Ω
V 19	6W4GT	Inf.	Inf.	165KΩ	#11Ω	†150Ω	#11Ω	#7Ω	#7Ω	
V 20	1X2A	PINS 1-9 HAVE INF RESISTANCE								Top Cap #430Ω
V 21	5U4G	Inf.	28KΩ	Inf.	28Ω	†1.9KΩ	28Ω	Inf.	28KΩ	
V 22	14BP4	▲0Ω	†150KΩ †100KΩ	PIN 10 #10KΩ	PIN 11 †330KΩ	PIN 12 ▲.1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
FOCUS CONTROL FULL CONTER-CLOCKWISE
† MEASURED FROM PIN 8 FO V21
# MEASURED FROM PIN 3 OF V19
▲ MEASURED FROM 180VDC LINE

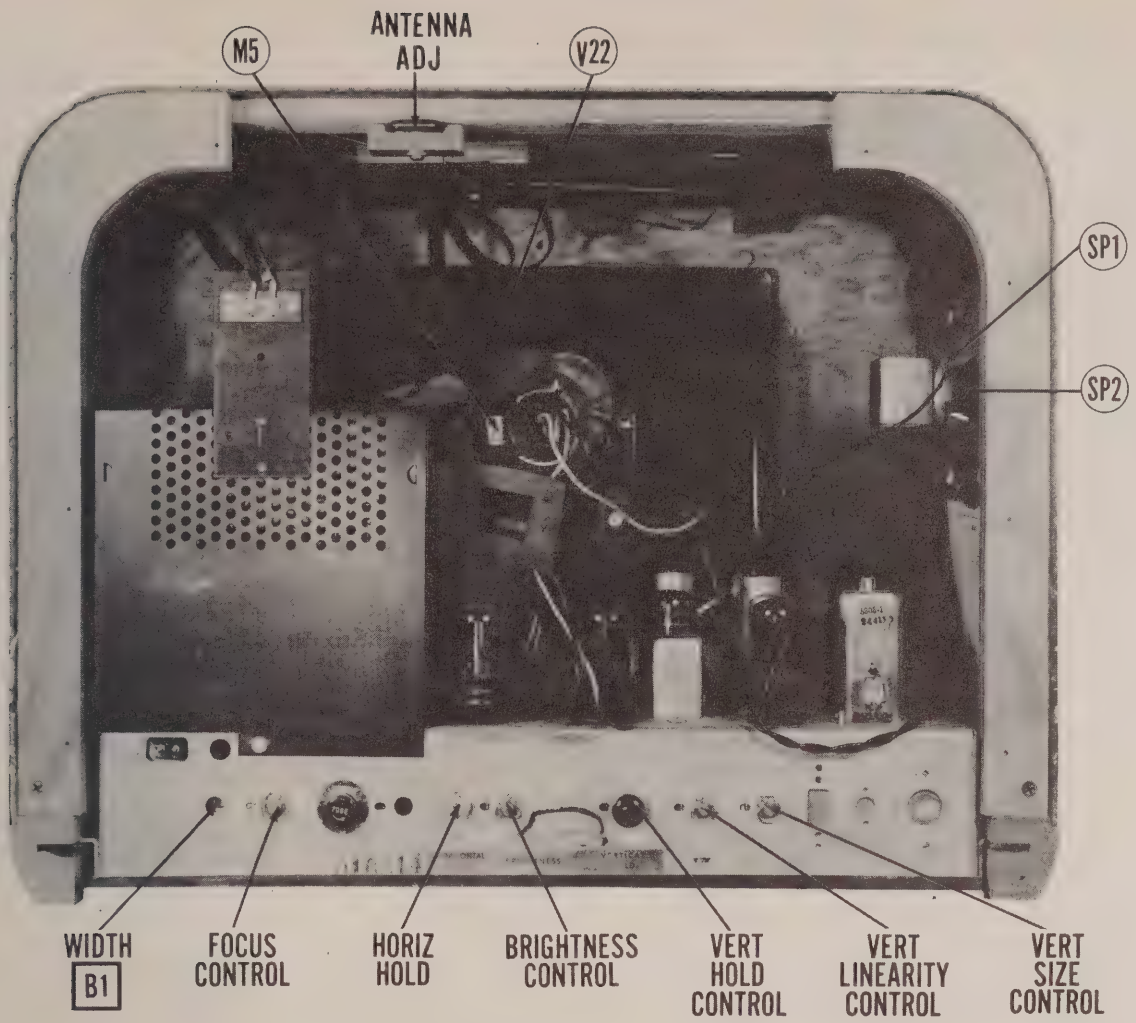
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold adjustment to synchronize the picture horizontally.

Adjust the width slug, (B1), until the picture is slightly wider than necessary to fill the mask horizontally.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove eight wood screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect speaker.
5. Remove four 7/16" hex head bolts from chassis. Remove chassis.
6. Remove four 11/32" hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: HOFFMAN PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6CB6	6CB6	6CK	
B	RF Amplifier	6BC5	6BC5	7BD	
C	RF Amplifier	6AG6	6AG6	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7BK	
V4	2nd. Video IF Amp.	6CB6	6CB6	7BK	
V5	3rd. Video IF Amp.	6CB6	6CB6	7BK	
V6	Video Detector	6AL5	6AL5	6BT	
V7	Video Amplifier	6CB6	6CB6	6CK	
V8	AGC Keyer	6AU6	6AU6	7BK	
V9	1st. Sound IF Amp.	6AU6	6AU6	7BK	
V10	2nd. Sound IF Amp.	6AU6	6AU6	7BK	
V11	Ratio Detector	6AL5	6AL5	6BT	
V12	AF Amplifier	6SQ7GT	6SQ7GT	8Q	
V13	Audio Output	6K6GT	6K6GT	7S	
V14	1st. Sync. Separator	6AU6	6AU6	7BK	
V15	2nd. Sync. Separator - Horizontal AFC	6SN7GT	6SN7GT	8BD	
V16	Vert. Oscillator - Vert. Amplifier	6BL7GT	6BL7GT	8BD	
V17	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V18	Horiz. Output	6BG6G	6BG6G	5BT	
V19	Damper	6W4GT	6W4GT	4CG	
V20	HV Rectifier	1X2A	1X2A	7CB	
V21	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: HOFFMAN PART No.	SYLVANIA PART No.	THOMAS PART No.	RTMA BASE TYPE	NOTES
V22A	14BP4	14BP4	14CP4	12D	
B	14CP4	14CP4	14CP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: HOFFMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	475	4232	AF866X		UPT44445		TVL-3843	▲ Filter
B	30	475							■ Filter
C	30	475							▲ Filter
C2A	10	475							▲ Horiz. MV Dec.
B	40	475	4238	AF834X2A		UPT407		TVL-4822	■ Filter
C	20	450		PR8150/4				TVA-1303	▲ Vert. Amp. Dec.
D	5	50							Horiz. Output Cathode
C3A	30	475		AF222X		UP2045C		TVL-1810	■ Audio Output Dec.
B	50	50	4230	PR850/50		BR1505		TVA-1308	▲ Vert. Amp. Cathode
C	20	25						TVA-1205	Audio Output Cathode
C4	20	450	4227	PR8450/20		BR3045A		TVA-1709	Vert. Amp. Decoupling
C5	4	450	4236	PR8450/4		BR445		TVA-1702	Horiz. Output Screen
C6	5	50	4209	PR8150/4		BR550		TVA-1303	Stabilizing Cap.
C7	3-9				829-10				Variable Trimmer
C8	.5-3				829-3				Variable Trimmer
C9	120			SI120	D6-121		GP2K-121	5GA-T12	RF Bypass
C10	1000			SI1000	D6-102		GP2L-102	5HK-D1	RF Amp. Fil.
C11	100			SI100N750	TCN-100		N750L-101	5TCU-T1	RF Coupling
C12	.5-3				829-3				Variable Trimmer
C13	30			SI20NP0	TCZ-20		NP0K-200		Osc. Grid Cap.
C14	10			SI10N750	TCN-10		N750K-100	5TCU-Q1	Fixed Trimmer
C15	.5-3				829-3				Variable Trimmer
C16A	1000			BPD-2X001	DD-2-102		812-001	5HK-2D1	RF Bypass
B	1000								Conv. Fil.
C17	10			SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C18	75						N750K-750		Fixed Trimmer
C19	.1	200	4143	P288-1	DF-104	PTE4P1		2TM-P1	Mixer Grid Cap.
C20	300			SI300	D6-301		GP2K-301		IF Coupling
C21	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	Fil. Bypass
C22	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	RF Bypass
C23	1.5		4062	SI1.5NP0	TCZ-1.5		NP0K-1R5		IF Coupling
C24	10		4027	SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C25	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	AGC Filter
C26A	4000		4036	BPD-2X004	D6-402	ID5D4	822-004	5HK-2D4	1st. Video IF Dec.
B	4000				D6-402	ID5D4			1st. Video IF Fil.
C27	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	1st. Video IF Cathode
C28	1.2		4074				NP0K-1R2		IF Coupling
C29	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	AGC Filter
C30	1.5		4062	SI1.5NP0	TCZ-1.5		NP0K-1R5		IF Coupling
C31	10		4027	SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C32A	4000		4036	BPD-2X004	D6-402	ID5D4	822-004	5HK-2D4	2nd. Video IF Decoupling
B	4000				D6-402	ID5D4			2nd. Video IF Fil.
C33	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	2nd. Video IF Cathode
C34	1.2		4074				NP0K-1R2		IF Coupling
C35	22				TCZ-22		NP0K-220	5TCC-Q22	Fixed Trimmer
C36A	4000		4036	BPD-2X004	DD-402	ID5D4	822-004	5HK-2D4	3rd. Video IF Decoupling
B	4000				DD-402	ID5D4			3rd. Video IF Fil.
C37	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	3rd. Video IF Cathode
C38	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	RF Bypass
C39	15				TCZ-15		NP0K-150	5TCC-Q15	Fixed Trimmer
C40	5		4028	SI5N750			N750K-050		Video Det. Filter
C41	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	Video Det. Fil.
C42	.22	400	4131	P488-22		GT4P25		4TM-P22	Video Coupling
C43	620	1500							Horiz. Sweep Coupling †
C44	.22	200	4131	P488-22		GT2P25		2TM-P22	AGC Filter †
C45	.22	200	4131	P488-22		GT2P25		2TM-P22	AGC Filter
C46	1500		4090	SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	1st. Sound IF Dec.
C47	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	1st. Sound IF Cathode
C48	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	1st. Sound IF Fil.
C49	330		4010	SI330	D6-331		GP2K-331	5GA-T33	2nd. Sound IF Grid
C50	1500		4090	SI1500	D6-152	1W5D15	GP2L-152	5HK-D15	2nd. Sound IF Dec.
C51	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	2nd. Sound IF Fil.

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: HOFFMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C52	30		4043		TCZ-30		NP0L-300		Diode Load Cap.
C53	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	RF Bypass
C54	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	RF Bypass
C55	.0047	400	4127	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	De-emphasis
C56	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	Audio Coupling
C57	.01	600	4105	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
C58	.0047	600	4128	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Audio Output Plate
C59	220		4026	SI220	D6-221	5W5T25	GP2K-221	5GA-T22	Sync. Coupling
C60	.047	600	4133	P688-047	DF-503	PTE6S5		6TM-S47	Sync. Coupling
C61A	.002			P688-002		PTE6D2	GP2-333-202		Integrator Net.
B	.005		♦9695	P688-005	♦PC-100	PTE6D5	GP2-333-502	♦101C1	Integrator Net.
C	.005			P688-005		PTE6D5	GP2-333-502		Integrator Net.
C62	7500	500	4083	SI7500			GP2-333-752		Vert. Sync. Coupling
C63	.1	600	4144	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C64	.047	600	4141	P688-047	DF-503	PTE6S5		6TM-S47	Vert. Discharge
C65	.047	400	4148	P488-047	DF-503	PTE4S5		4TM-S47	Fixed Trimmer
C66	.0047	1000	4149	P1088-0047		PTE16D5		MB-D47	Picture Tube Grid
C67	.1	600	4144	P688-1	DF-104	PTE6P1		6TM-P1	RF Bypass
C68	330		4010	SI330	D6-331		GP2K-331	5GA-T33	Horiz. Sync. Coupling
C69	.01	400	4142	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	AFC Plate
C70	.022	1000	4135	P1088-022		PTE16S25		MB-S22	Horiz. Feedback
C71	5000		4029	BPD-005	DD-502	ID5D5	811-005	5HK-D5	AFC Filter
C72	.01	400	4142	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	AFC Filter
C73	.1	200	4143	P288-1	DF-104	PTE4P1		2TM-P1	AFC Filter
C74	3900	500	4085	1464-004		1DR5D4		MS-24	Fixed Trimmer
C75	270	500	4022	1469-0003		5R5T3	GP2K-271	MS-33	Horiz. MV Feedback
C76	.0047	600	4128	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Horiz. Sweep Coupling
C77	250	500	4086	1468-00025	D6-251	5W5T25	GP2K-251	1FM-325	Horiz. Discharge
C78	220		4026	SI220	D6-221	5R5T25	GP2K-221	5GA-T22	Horiz. Discharge
C79	.22	600	4129	684-25		GP6P25		6TM-P25	Decoupling
C80	.1	600	4144	P688-1	DF-104	PTE6P1		6TM-P1	RF Bypass
C81	.01	600	4105	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Line Filter
C82	.01	600	4105	P688-01	D6-103	PTE6S1	GP2-333-103	6TM-S1	Line Filter

† Some models use 500MMF. in this application (Mfgrs. Part # 4075).
‡ Some models use 5000MMF. in this application (Mfgrs. Part # 4029).
♦ Items C61A, C61B, C61C, R64A, R64B, R64C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: HOFFMAN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1500Ω	½	4833		RTV-247	SBB-626-S	Contrast Control - Front
B	500KΩ	½					Volume Control and SW - Rear
R2	10KΩ	4	[illegible]		RTV-186	VK-137	Focus Control - Wire Wound - See Note 1
R3A	50KΩ	½	4853	Q11-123	AG-44-S	AN-31	Brightness Control - See Note 2
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R3A per instructions
R4A	1Meg	½	4852	Q11-137	AG-61-S	AN-69	Vert. Hold Control - See Note 3
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R4A per instructions
R5A	5000Ω	½	4850	Q11-114	AG-19-S	AN-10	Vert. Linearity Control - See Note 4
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R5A per instructions
R6A	2.5Meg	½	4851	Q11-239	AG-84-S	AN-83	Vert. Size Control - See Note 5
B	Shaft		Not req.	Not req.	FKS-1/4	AK-1	Attach to R6A per instructions

Note 1 Some models use Control having Part # 4834 in this application.
Note 2 Some models use Control having Part # 4831 in this application.
Note 3 Some models use Control having Part # 4832 in this application.
Note 4 Some models use Control having Part # 4820 in this application.
Note 5 Some models use Control having Part # 4821 in this application.

RESISTORS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: HOFFMAN PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R7	3900Ω	½		BTS-3900	Antenna Coil Shunt
R8	47KΩ	20%		BTS-47K	AGC Network
R9	2200Ω	20%		BTS-2200	RF Amp. Decoupling
R10	10KΩ	20%		BTS-10K	RF Coil Shunt
R11	4700Ω			BTS-4700	Mixer Grid
R12	220KΩ	20%		BTS-220K	Mixer Grid
R13	15KΩ	20%		BTS-15K	Mixer Plate
R14	10KΩ			BTS-10K	Osc. Grid
R15	4700Ω			BTS-4700	Osc. Plate
R16	100KΩ		4511	BTS-100K	AGC Network
R17	330Ω	20%	4509	BTS-330	AGC Network
R18	330Ω	20%	4509	BTS-330	AGC Network
R19	1000Ω		4542	BTS-1000	Decoupling
R20	3300Ω	5%	4648	BTS-3300-5%	1st. Video IF Amp. Grid
R21	47Ω		4639		1st. Video IF Amp. Cathode - See Note 7
R22	150Ω		4616	BTS-150	1st. Video IF Amp. Cathode
R23	1500Ω		4542	BTS-1500	1st. Video IF Amp. Decoupling - See Note 8
R24	3300Ω	5%	4648	BTS-3300-5%	2nd. Video IF Transformer Shunt
R25	47Ω		4639		2nd. Video IF Amp. Cathode
R26	150Ω		4616	BTS-150	2nd. Video IF Amp. Cathode
R27	1500Ω		4542	BTS-1500	2nd. Vide IF Amp. Decoupling - See Note 8
R28	3300Ω	5%	4648	BTS-3300-5%	3rd. Video IF Transformer Shunt
R29	200Ω		4642		3rd. Video IF Amp. Cathode
R30	1500Ω		4542	BTS-1500	3rd. Video IF Amp. Decoupling - See Note 8
R31	3300Ω		4607	BTS-3300	AGC Network
R32	100KΩ		4511	BTS-100K	AGC Network
R33	5600Ω	5%	4603	BTS-5600-5%	Video Det. Diode Load
R34	680Ω	20%	4514	BTS-680	Contrast Control Shunt
R35	3900Ω	5%	4654	BTS-3900-5%	Video Amp. Plate
R36	1200Ω		4553	BTS-1200	Video Amp. Plate
R37	100KΩ	20%	4511	BTS-100K	Picture Tube Grid
R38	330KΩ	20%	4677	BTS-330K	Picture Tube Cathode
R39	68KΩ	20%	4661	BTS-68K	Voltage Divider
R40	47KΩ	20%	4504	BTS-47K	Isolation
R41	100Ω		4566	BTS-100	1st. Sound IF Amp. Cathode
R42	1500Ω	20%	4542	BTS-1500	1st. Sound IF Amp. Decoupling - See Note 8
R43	47KΩ		4504	BTS-47K	2nd. Sound IF Amp. Grid
R44	100Ω		4566	BTS-100	2nd. Sound IF Amp. Cathode

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: HOFFMAN PART No.	IRC PART No.	IDENTIFICATION CODES
R45	1500Ω	½	4542	BTS-1500	2nd. Sound IF Amp. Decoupling - See Note 8
R46	270KΩ	1		BTA-270K	Voltage Divider - See Note 9
R47	10KΩ	½	4597	BTS-10K	Ratio Det. Diode Load
R48	10KΩ	½	4597	BTS-10K	Ratio Det. Diode Load
R49	270Ω	½	4663	BTS-270	Balancing
R50	15KΩ	20% ½	4521	BTS-15K	De-emphasis
R51	10Meg	20% ½	4505	BTS-10Meg	AF Amp. Grid
R52	220KΩ	½	4618	BTS-220K	AF Amp. Plate
R53	470KΩ	20% ½	4506	BTS-470K	Output Grid
R54	470Ω	20% 2	4531	BTB-470	Output Cathode
R55	470Ω	20% 2	4531	BTB-470	Decoupling
R56	10Meg	20% ½	4505	BTS-10Meg	1st. Sync. Sep. Grid
R57	22KΩ	½	4628	BTS-22K	1st. Sync. Sep. Screen
R58	12KΩ	20% ½	4660	BTS-12K	1st. Sync. Sep. Plate
R59	100KΩ	½	4511	BTS-100K	1st. Sync. Sep. Plate
R60	18KΩ	½	4662	BTS-18K	Voltage Divider
R61	220KΩ	½	4618	BTS-220K	2nd. Sync. Sep. Grid
R62	680KΩ	½	4557	BTS-6800	2nd. Sync. Sep. Cathode
R63	6800Ω	½	4557	BTS-6800	2nd. Sync. Sep. Plate
R64A	22KΩ	½	9695 ♦	BTS-22K	Integrator
B	8200Ω	½		BTS-8200	Integrator
C	8200Ω	½		BTS-8200	Integrator
R65	1Meg	½	4614	BTS-1Meg	Vert. Osc. Grid
R66	3.3Meg	20% 1	34634	BTA-3.3Meg	Vert. Osc. Plate
R67	3300Ω	½	4607	BTS-3300	Vert. Peaking
R68	1Meg	20% ½	4513	BTS-1Meg	Vert. Output Grid
R69	560Ω	½	4507	BTS-560	Vert. Output Cathode
R70	1000Ω	5% 1		BTA-1000-5%	Vert. Output Decoupling - See Note 10
R71	10KΩ	5	4737	1 3/4A-10K	Voltage Divider - Wire Wound
R72	100KΩ	½	4511	BTS-100K	Bleeder
R73	100KΩ	½	4511	BTS-100K	Bleeder
R74	3300Ω	½	4607	BTS-3300	Voltage Divider
R75	100KΩ	20% ½	4511	BTS-100K	Horiz. AFC Grid
R76	68KΩ	20% ½	4661	BTS-68K	Horiz. AFC Cathode
R77	4700Ω	20% ½	4543	BTS-4700	Horiz. AFC Plate
R78	12KΩ	20% ½	4660	BTS-12K	Horiz. AFC Filter
R79	560KΩ	½		BTS-560K	Horiz. AFC Filter - See Note 11
R80	1800Ω	½	4640	BTS-1800	Horiz. MV Cathode
R81	5600Ω	½	4629	BTS-5600	Horiz. MV Plate
R82	470KΩ	½	4506	BTS-470K	Horiz. MV Grid
R83	150KΩ	½	4589	BTS-150K	Horiz. MV Plate
R84	22KΩ	½	4628	BTS-22K	Horiz. MV Decoupling
R85	8200Ω	½	4651	BTS-8200	Horiz. Peaking
R86	100Ω	½	4566		Parasitic Suppressor
R87	470KΩ	20% ½	4506	BTS-470K	Horiz. Output Grid
R88	120Ω	2	4657	BW-2-120	Horiz. Output Cathode
R89	15KΩ	20% 2	4665	BTB-15K	Horiz. Output Screen
R90A	800Ω	10	4731		Voltage Divider - Wire Wound
B	1100Ω				Voltage Divider - Wire Wound
R91	5000Ω	3	4724		Focus Coil Shunt - Wire Wound
R92	5000Ω	3	4724		Focus Coil Shunt - Wire Wound - See Note 6
R93	1500Ω	10	4725	1 3/4A-1500	Focus Coil Shunt - Wire Wound
R94	150Ω	10	4730	1 3/4A-150	Filter - Wire Wound
R95	2.2Ω	½	4735		HV Rectifier Filament - Wire Wound

♦ Items R64A, R64B, R64C, C61A, C61B, and C61C are combined into one unit.
Note 6 Not used in all models.
Note 7 Some models use 39Ω Resistor in this application.
Note 8 Some models use 1000Ω Resistor in this application.
Note 9 Some models use 220KΩ Resistor in this application.
Note 10 Some models use 1500Ω Resistor in this application.
Note 11 Some models use 470KΩ Resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA: HOFFMAN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	760VCT	5VAC	6.3VAC	5023		P-3067 and P-3074 ②	
	ⓐ 2A	.200ADC	ⓐ 3A	ⓐ 1.2A				
				SEC. 4				
				6.3VAC				
				ⓐ 9A				
				SEC. 5				
				6.3VAC				
				ⓐ 9.2A				

② For Ser. # 3.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	SEC.	REPLACEMENT DATA: HOFFMAN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	180Ω	180Ω	5127	A-8122	A-4000 ①	TBO-1 ①	Vert. Block Osc. Trans.
T3	430Ω	0Ω	5148				Horiz. Output Trans.
	Taps .9Ω, 2.5Ω, 9.5Ω, 18Ω and 35Ω						
T4	1.2KΩ		5140	A-8112 ①	A-3036 ①	TSO-5	Vert. Output Trans.
T5A	Tap 11Ω		5389				Horiz. Deflection Coils
B	45Ω						Vert. Deflection Coils
T6	1.5KΩ		5341				Focus Coil

① Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		HOFFMAN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T7	6.3KΩ	3.1Ω	370Ω	.3Ω	5147	A-3823 ①	A-3020	RO-13 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	HOFFMAN PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.1Ω	9067	ST803 Model P525V	52A1	
	CONE DIA.	V. C. DIA.				
SP2	5 1/4"	9/16"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	HOFFMAN PART No.	MEISSNER PART No.	
L1	Ant. Coil	0Ω	0Ω			
L2	Fil. Choke	0Ω				
L3	RF, Mixer Grid & Osc. Coil	0Ω				
L4	Fil. Choke	0Ω				
L5	RF Choke	.5Ω				
L6	Conv. Plate Coil	.5Ω				
L7	1st. Video IF	.3Ω		5391		Includes Trap .2Ω
L8	2nd. Video IF	.3Ω	.2Ω	5335		
L9	Sound Trap	.1Ω		5344		
L10	3rd. Video IF	.3Ω	.2Ω	5335		
L11	4th. Video IF	.3Ω		5336		
L12	Sound Trap	.3Ω		5342		
L13	Peaking	5Ω		5338		60 Microhenries wound on 12KΩ resistor
L14	Peaking			5339	19-1923 †	350 Microhenries wound on 33KΩ resistor
L15	Peaking			5340	19-1923	350 Microhenries
L16	1st. Sound IF	.1Ω		5386		
L17	Fil. Choke	0Ω		5133		
L18	2nd. Sound IF	.1Ω	.1Ω	5304		
L19	Ratio Det. Trans.	.1Ω	.1Ω	5305		Tap .1Ω
L20	Horiz. Osc.	80Ω		5300		
L21	Width Coil	1Ω		5317		

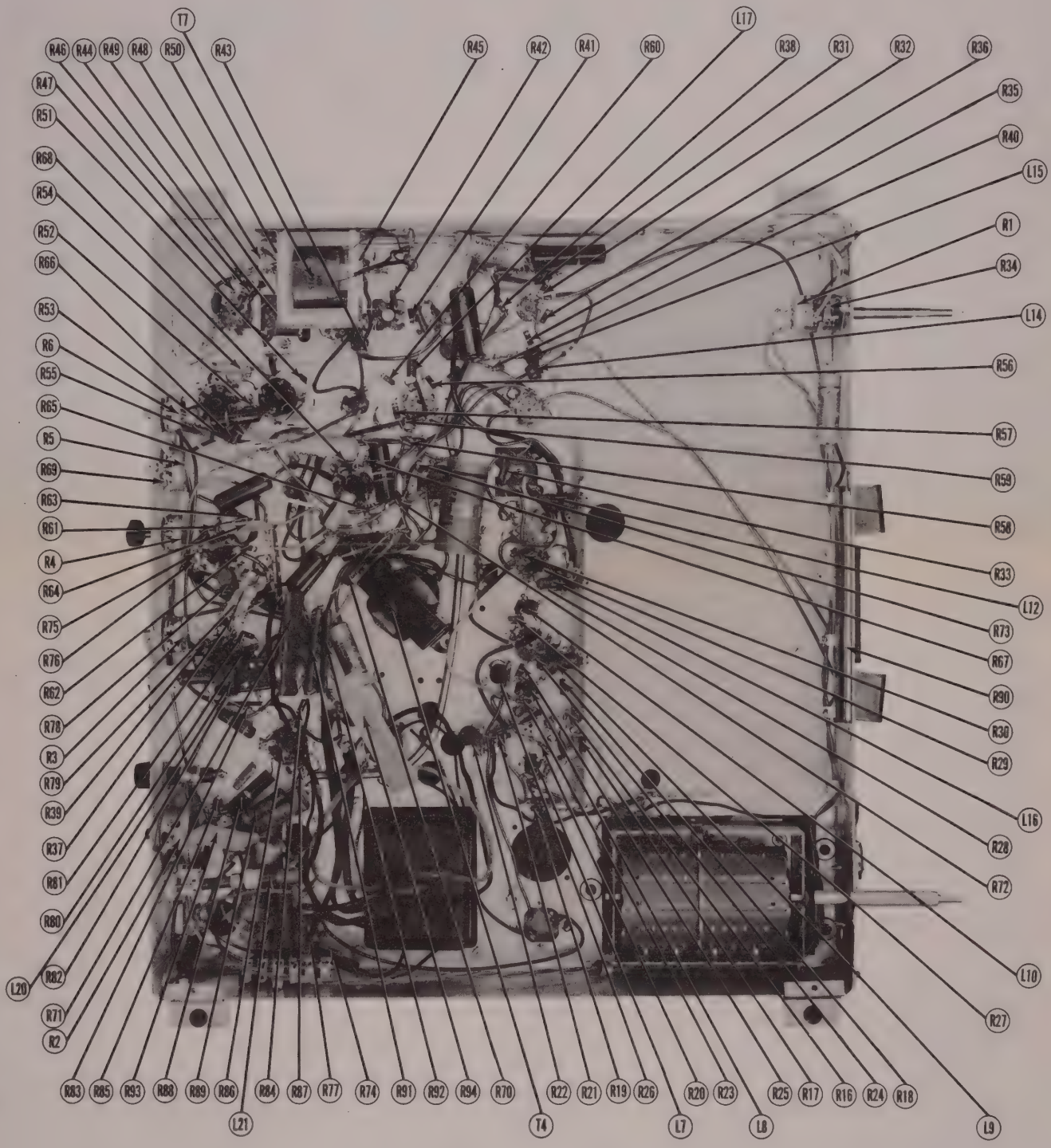
† Parallel with 33KΩ resistor

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			HOFFMAN PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG Slo Blo	3A	9648		31303.2	342001	
M2	3AG	.250A	9515		312.250	357001	

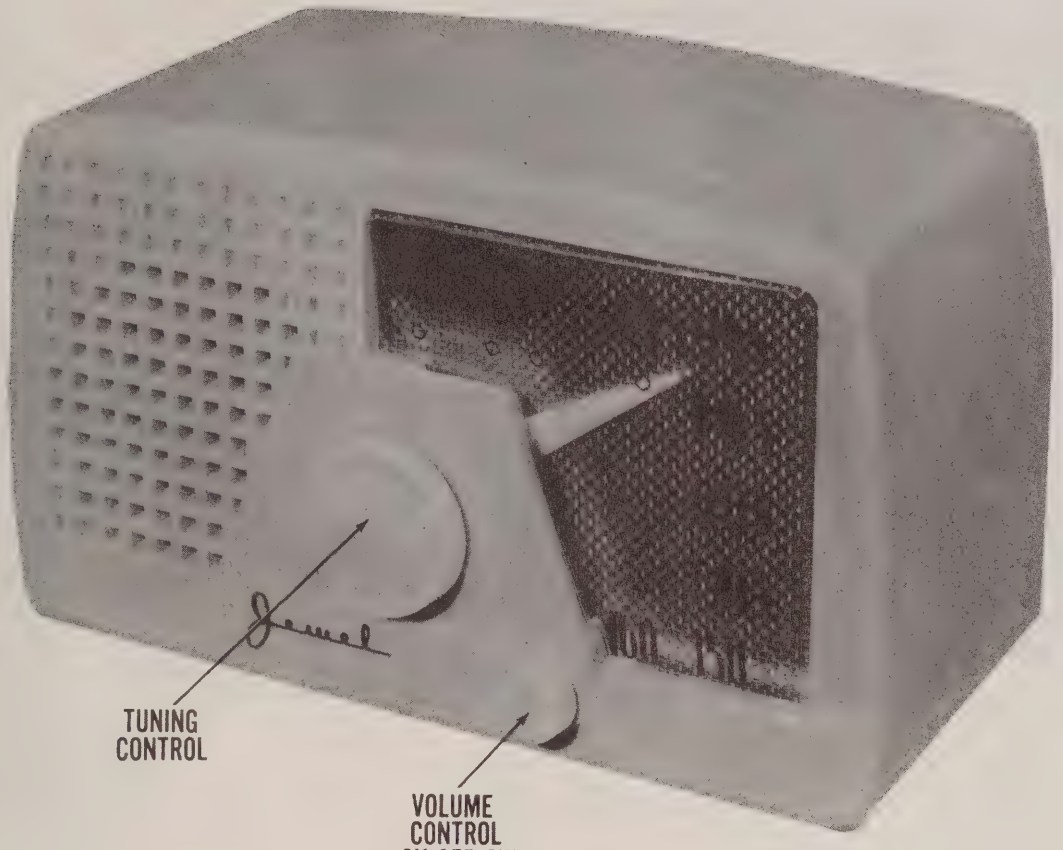
MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
M4	RF Tuner		
M5A	Ion Trap	9669	
B	Ion Trap	9702	
	Knob	33523	Channel Selector
	Knob	3642	Fine Tuning
	Knob	33524	Off/On Volume
	Knob	3773	Contrast



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

JEWEL
MODEL 956



JEWEL
MODEL 956

TRADE NAME	Jewel, Model 956
MANUFACTURER	Jewel Radio Co., 10-40 5th Avenue, Long Island City, New York
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna.
TUBES (FIVE)	Types 12SA7 Converter, 12SK7 IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1Mfd.	High side to stator on rear section of tuning gang. Low side to chassis.	455KC (400~Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1650KC	"	"	A5	"
3.		Loop	1500KC	Tune for max. output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

JEWEL MODEL 956

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: JEWEL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1A	Converter	12SA7	12SA7	8R	
B	Converter	12BE6	12BE6	7CH	
V2A	IF Amplifier	12SK7	12SK7	8N	
B	IF Amplifier	12BA6	12BA6	7BK	
V3A	Det.-AVC-AF	12SQ7	12SQ7	8Q	
B	Det.-AVC-AF	12AT7	12AT7	9A	
V4A	Power Output	50L6GT	50L6GT	7AC	
B	Power Output	50B5	50B5	7BZ	
V5A	Rectifier	35Z5GT	35Z5GT	6AD	
B	Rectifier	35W4GT	35W4GT	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: JEWEL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	35	150	31-18	PRS150/50-30		BRD4415A		TVA-2445	Filter †
B	35	150							Filter †
C2	.05	200	32-4	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C3	250		35-1	SI250	D6-251	5W5T25	GP2K-251		Diode RF Filter
C4	.004	400		P688-004	D6-402	PTE6D4	GP2-333-402	6TM-D4	Audio Coupling ‡
C5	250		35-1	SI250	D6-251	5W5T25	GP2K-251		AF Amp. Plate
C6	.01	400	32-29	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C7	.004	400		P688-004	D6-402	PTE6D4	GP2-333-402	6TM-D4	Output Plate ¶
C8	.05	400	32-5	P488-05	DF-503	PTE4S5		4TM-S5	Rectifier Plate

† Some models use 50-30MFD in this application (Mfgrs. Part # 31-20)
‡ Some models use 002MFD in this application (Mfgrs. Part # 32-17)
¶ Some models use .01MFD in this application (Mfgrs. Part # 32-29)

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: JEWEL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	50-18A	Q13-133	AG-60-Z	BSK-60-S	Volume Control
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R1A per instructions
C	Switch		Not req.	76-1	SWB	Not req.	Attach to R1A per instructions

RESISTORS

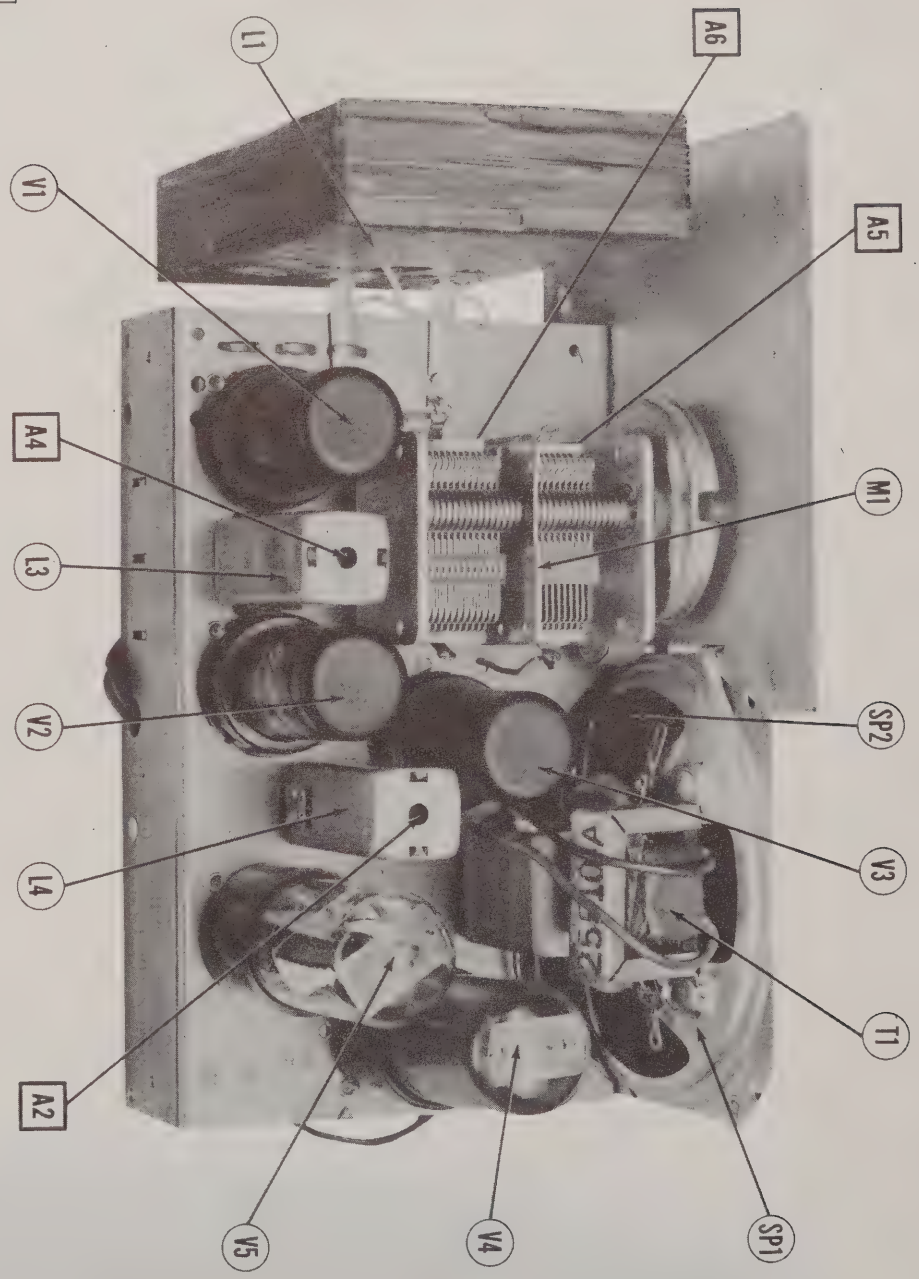
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: JEWEL PART No.	IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½	20-3	BTS-22K	Osc. Grid
R3	150Ω	½	20-81	BTS-150	IF Amp. Cathode - See Note 1
R4	3.3Meg	½	20-56	BTS-3.3Meg	AVC Network
R5	10Meg	½	20-8	BTS-10Meg	AF Amp. Grid
R6	390KΩ	½	20-19	BTS-390K	AF Amp. Plate - See Note 2
R7	390KΩ	½	20-19	BTS-390K	Output Grid - See Note 2
R8	150Ω	½	20-81	BTS-150	Output Cathode
R9	1500Ω	1	20-73	BTA-1500	Filter
R10	22Ω	½	20-93		Rectifier Ballast

Note 1 Not used in all models.
Note 2 Some models use 470KΩ resistor in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: JEWEL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	2.2KΩ	3.5Ω	150Ω	.5Ω		A-3332	A-3025	RO-2 ①	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: JEWEL PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.				
SP1	PM	3.5Ω	80-18A	ST113 Model P4-X	4A07	
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

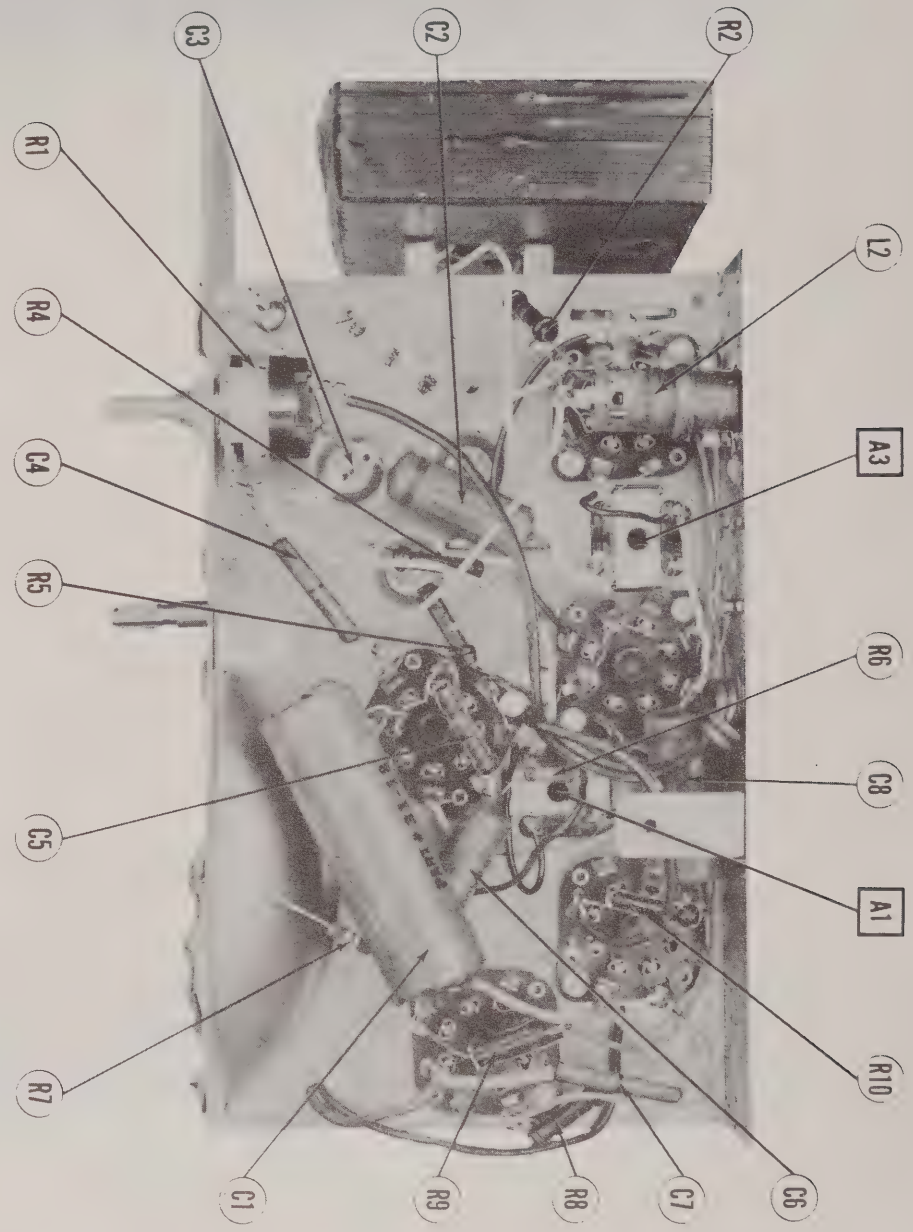
R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: JEWEL PART No.	REPLACEMENT DATA: MEISSNER PART No.	
L1	Loop Ant.	1.9Ω		62-19		
L2	Osc. Coil	6.1Ω		60-12		Tap .4Ω
L3	1st. IF	18Ω	18Ω	61-11		
L4	2nd. IF	18Ω	18Ω	61-11		

MISCELLANEOUS

ITEM No.	PART NAME	JEWEL PART No.	NOTES
M1	2 Gang Var. Cap.	30-21	(28-453MMF, 35-200MMF)
	Dial Pointer	53-7	
	Cabinet	120-40B	Specify Color
	Dial Crystal	142-9	

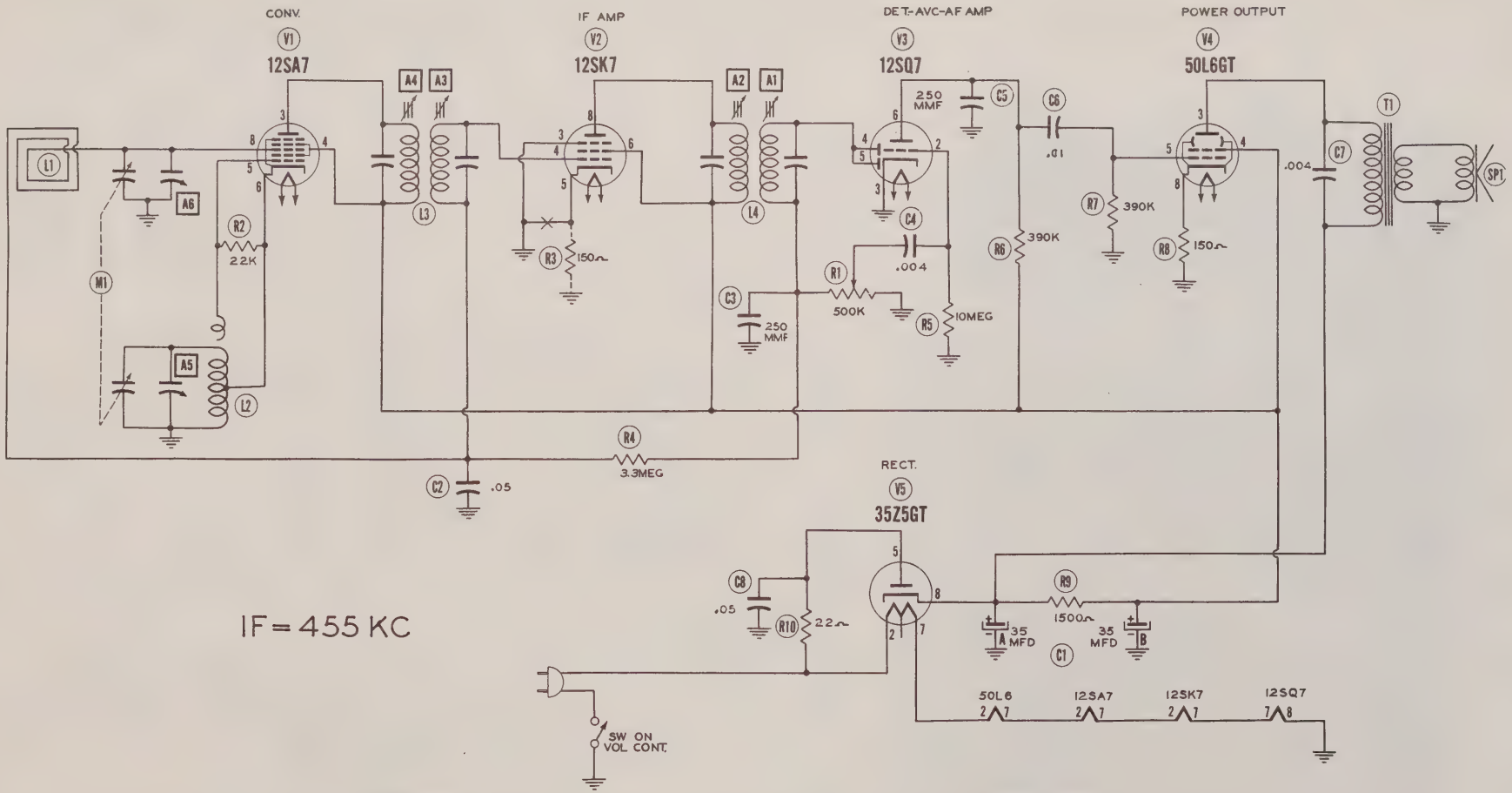
CHASSIS—BOTTOM VIEW



SET 144 FOLDER 6

JEWEL MODEL 956

JEWEL MODEL 956



IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	0V	36VAC	80VDC	80VDC	§-6.2VDC	0V	24VAC	-.5VDC
V 2	12SK7	0V	24VAC	0V	-.5VDC	0V	80VDC	12VAC	80VDC
V 3	12SQ7	0V	-.5VDC	0V	-.4VDC	-.4VDC	50VDC	12VAC	0V
V 4	50L6GT	0V	86VAC	115VDC	80VDC	0V	0V	36VAC	5VDC
V 5	35Z5GT	0V	117VAC	108VAC	0V	110VAC	0V	86VAC	120VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7	0Ω	36Ω	†1.5KΩ	†1.5KΩ	22KΩ	.4	24Ω	3.8Meg
V 2	12SK7	0Ω	24Ω	0Ω	3.8Meg	0Ω	†1.5KΩ	12Ω	†1.5KΩ
V 3	12SQ7	0Ω	10Meg	0Ω	500KΩ	500KΩ	†390KΩ	12Ω	0Ω
V 4	50L6GT	0Ω	86Ω	†150Ω	†1.5KΩ	390KΩ	Inf.	36Ω	150Ω
V 5	35Z5GT	Inf.	121Ω	110Ω	Inf.	145Ω	Inf.	86Ω	140KΩ

† MEASURED FROM PIN 8 OF V5.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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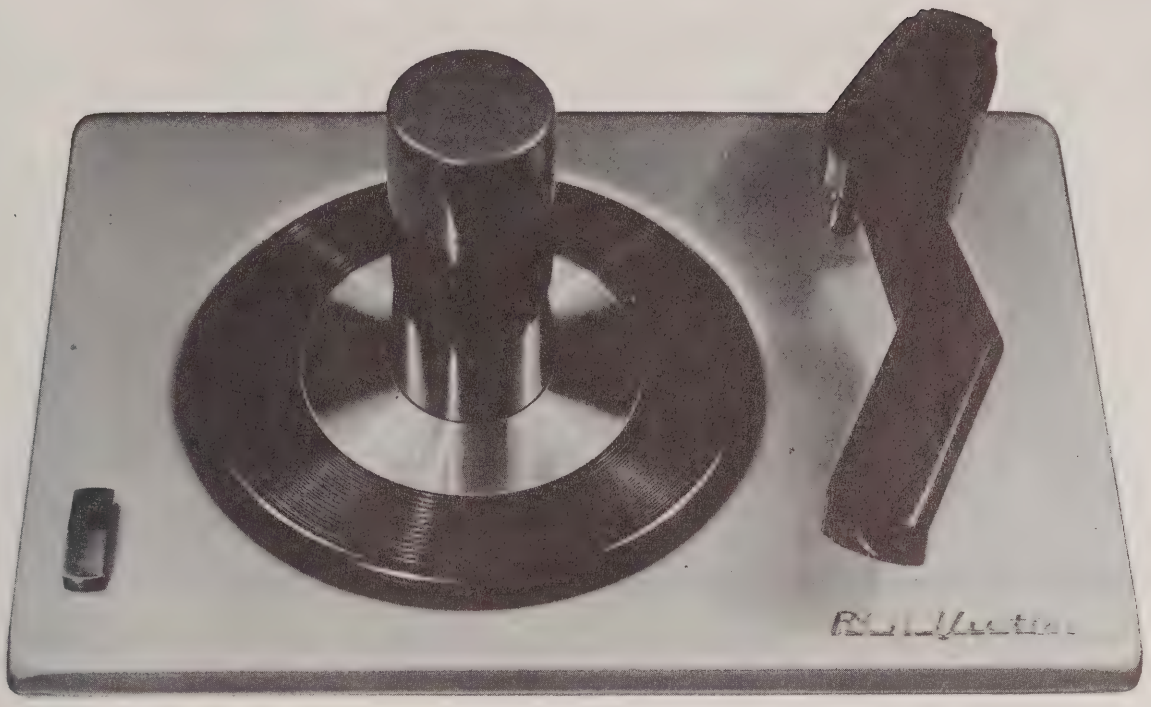
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RCA VICTOR
MODEL RP-190 Series



RCA VICTOR
MODEL RP-190 Series

Figure 1

GENERAL INFORMATION

The RCA Victor Model RP-190 Series Changer is designed to play and change automatically up to twelve 7" 45 RPM fine-groove records, in sequence, at a single loading. This changer is of the new "Spindle-Loading," "Rapid-Changing" type. It is designed to operate from a supply of 105-125 Volts, 60 Cycles A.C. The last record will be repeated until the changer is turned off.

Manufactured by:

Radio Corporation of America
RCA Victor Division
Camden, New Jersey

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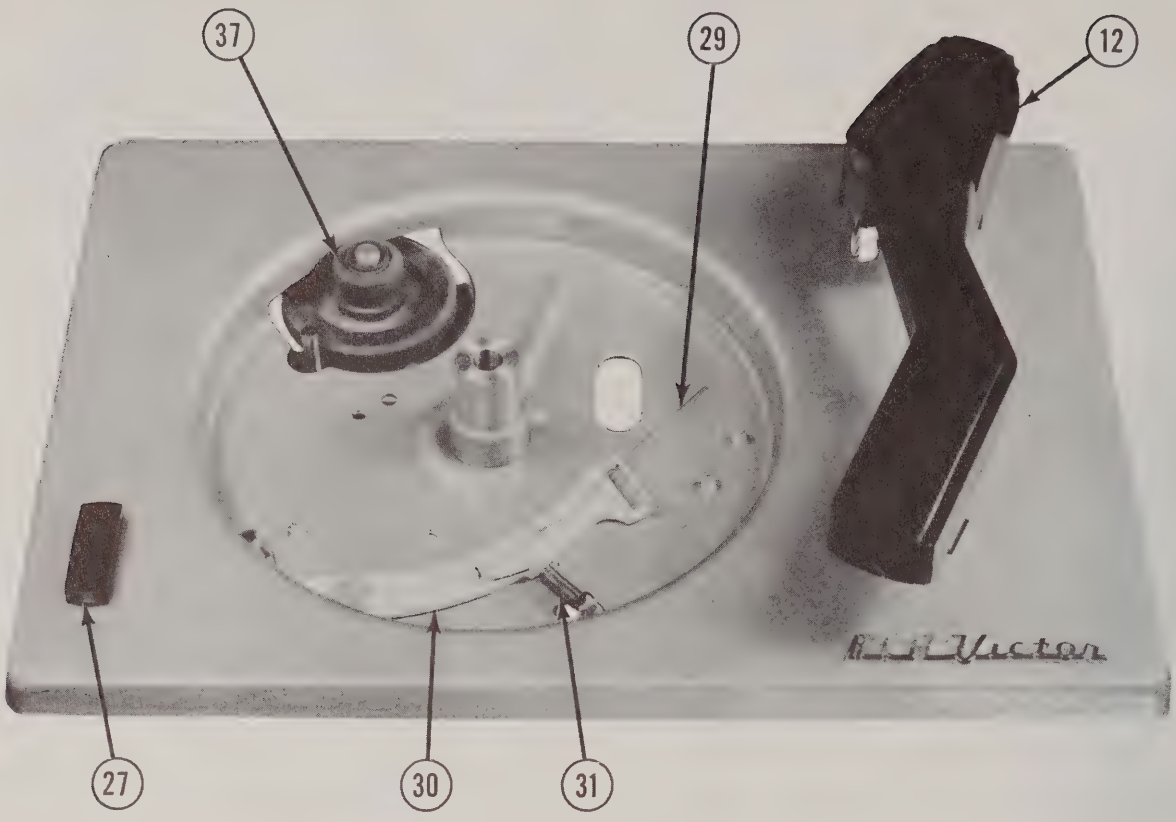


Figure 2

AUTOMATIC OPERATION

1. Insert the pin plug into the phone jack of a radio or other amplifier.

2. Insert the power plug into convenient wall receptacle supplying power of 115 volts, 60 cycles A.C.

3. Place the changer on a flat surface, making sure it is level.

4. Remove the cardboard tube from pickup arm and lower the pickup arm on the arm rest.

5. Place up to twelve 7" fine-groove records on the spindle, allowing them to come to a rest on the record supports (4).

6. Pull the control knob (27) forward until a click is heard; this turns the motor on and starts the turntable rotating. By pulling the control knob all the way forward, the mechanism is tripped and the automatic operation is started. The entire stack of records is then played, in sequence, on one side only. The volume and tone are then regulated by the controls on the instrument to which the changer is attached.

7. To reject a record while playing, pull the control knob (27) forward and release.

8. To repeat a record being played, remove all remaining records from the separator shelf (4). The remaining record will continue to repeat until additional records are replaced on the spindle, or the control knob (27) is moved to the "Off" position.

CAUTION: 1. Do not handle the pickup arm while the mechanism is in cycle.

2. Do not use force to release a jam.

3. Do not try to remove the records on the turntable if the mechanism is stopped in cycle.

4. If the separator knives (3) protrude from the center post when the mechanism is out of cycle, move the control knob (27) to "Reject" and the condition should be corrected automatically.

CHANGE CYCLE

The change cycle is started by pulling the control knob (27) to the "Reject" position. This actuates the reject lever (30), causing the reject lever spring (29) to move against the stud (73A) of the eccentric cycling cam (73). A slight movement of the eccentric cycling cam is sufficient for the cycling cam to engage

the rotating knurled roller (57), which is mounted on the turntable shaft.

The cycling cam wheel (73), which is mounted on the cycling slide (80), pushes the slide in the direction of the pickup arm pivot. As the slide (80) moves toward the pivot point, the spring (74) tension is increased. Also, tab (80A) of the slide moves back permitting the muting switch (81) to close.

As the slide (80) continues to move back, the incline (80C) moves against the elevating rod (23) and, in turn, raises the pickup arm from the record. The step in the slide then engages the stud (X) of the trip lever (67), pivoting the lever and pickup arm outward (see Figure 3). At the same time this takes place, the eccentric landing adjustment screw (68) contacts and pushes the pickup arm return lever (61) against the tension of the return spring (62).

As the cycling slide (80) reaches its full limit of travel, the stop dog (80B), which is mounted to the slide, engages the rotating ratchet wheel (75). The ratchet wheel (75) and separator shaft (7) then remain stationary as the turntable continues to rotate. The separator shelves and knives are coupled together in such a manner that the flattened end of the separator shaft (7) pushes the knives (3) out, which, in turn, pulls the opposite shelves in. As the shelves (4) recede, the separator knives (3), mounted above the shelves, move out and separate the lower record of the stack and support the remaining records while the lower record drops to the turntable.

At this point, due to the shape of the eceentric cycling wheel (73) and the tension of spring (74), the slide (80) moves away from the pickup arm pivot. The stud (X) on the trip lever (67) assembly follows the slide due to the force produced by the spring (62) on the return lever (61). After the slide has moved back a short distance, the landing adjustment stud (68) engages the step on the end of the return lever (61) pulling stud (X) away from the slide. At this point, the pickup is directly above the point of landing.
The elevating rod (23) now rides down the incline (80C) lowering the pickup arm to the record. At approximately the same time tab (80A) of the slide contacts and opens the muting switch, stud (80D) pushes against the pickup return lever to permit free motion to the pickup arm.

The change cycle is completed as the slide moves against the stop bracket (43), at which time the knurled roller (57) rotates in the cutaway section of the cam (73).

As the pickup arm moves toward the center of the record, the trip lever assembly (67) is pivoted inward. When the needle enters the cycling groove of the record, the trip (67A) contacts the flange (73B) and pushes it slightly. This slight movement of the cycling cam causes it to engage the rotating knurled roller (57), thereby starting a new change cycle.

ADJUSTMENTS

Pickup Arm Set-Down (Refer to Figure 3) -

Under normal conditions, the pickup arm set-down is adjusted by the eccentric adjustment stud (68). The adjustment of the eccentric landing adjustment stud (68) gives approximately a 1/4" movement. If, however, the pickup arm has been removed, make the adjustment as follows:

1. Rotate the adjustment stud (68) to a midway position.

2. With the changer out of cycle and the clamp screw (21) loose, place the pickup arm on the arm rest; then, tighten the clamp screw (21) enough so that the clamp (20) will not slip on the pickup arm shaft.

3. With the power removed, pull the control knob (27) to the "Reject" position; then, rotate the turntable, by hand, in a clockwise direction until the pickup arm starts to lower.

4. Loosen the clamp screw (21). Hold the trip lever assembly (67) in a position so that the adjusting stud (68) engages the step in the return lever (61); then, move the pickup arm to the position where the stylus is directly above the starting groove of the record. Then, tighten the clamp screw (21), being careful not to move the pickup arm.

5. A fine adjustment may now be made by the eccentric landing stud (68).

Pickup Arm Height (Refer to Figure 3) -

The correct height adjustment is when the stylus clears the turntable by approximately 1-1/8" during the change cycle. This adjustment is determined by turning the knurled nut (71). Turning this nut in raises the pickup arm, and turning it out lowers the arm.

NOTE: If unable to adjust for proper height, it may be necessary to cut a few turns from the compression spring (70) to allow more space on the shaft.

Tripping Adjustment (Refer to Figure 3) -

The tripping point of the changer is adjusted by the trip adjustment stud (64). The stud (64) should be adjusted so that, when the needle enters the eccentric cycling groove of the record, the mechanism will be put into cycle.

Mounting Bracket Adjustment (Refer to Figure 3) -

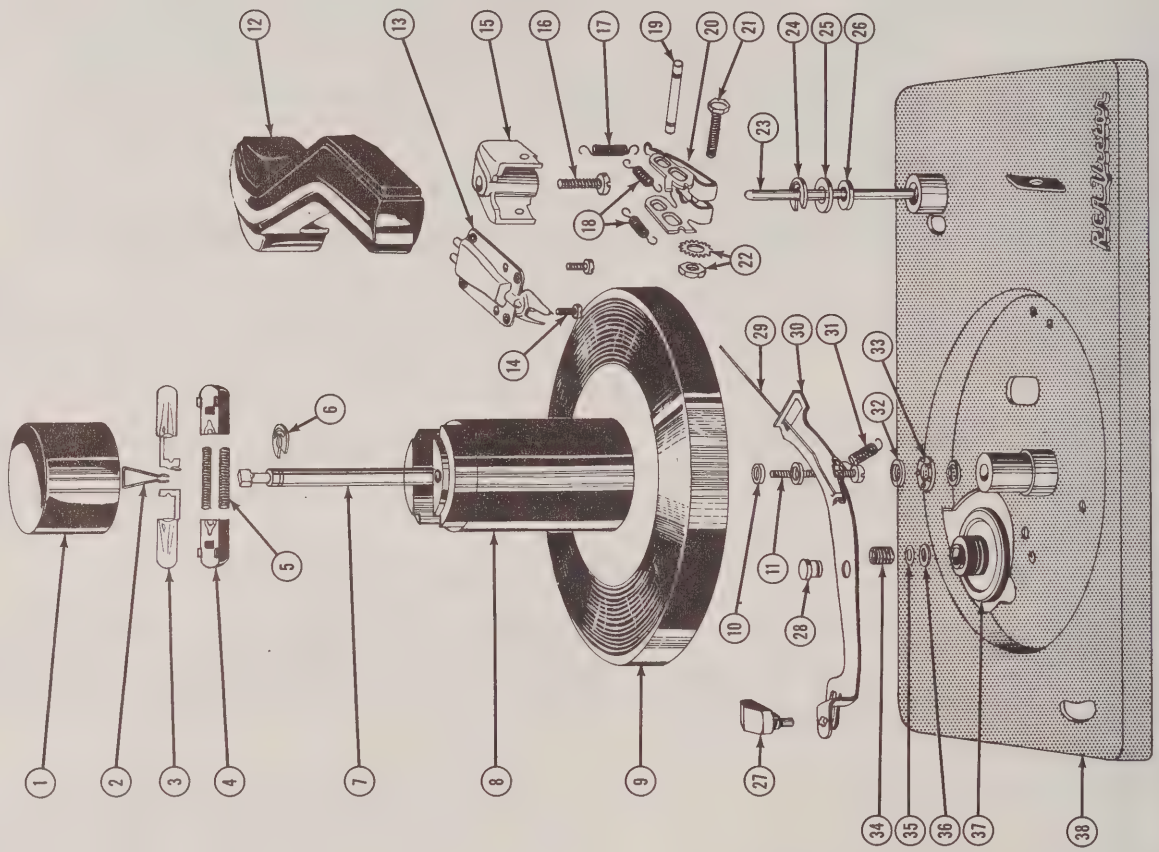
Loosen the two mounting screws (45) and move the bracket (43) back or forward until the cutaway section of the cycling cam (73) clears the knurled roller (57) by approximately 1/16". Tighten the screws. When making this adjustment, keep the bracket (43) as nearly perpendicular to the slide (80) as possible.

Muting Switch Adjustment (Refer to Figure 3) -

The contacts should be approximately 1/32" to 1/16" apart when the mechanism is out of cycle. To make this adjustment, loosen the two mounting screws (82) and adjust the bracket (81). If the mounting screws do not give sufficient adjustment, bend the tab (80A) on the slide slightly.

Stop Dog Adjustment (See Figure 3) -

During the change cycle, the stop dog (80B) engages the ratchet wheel (75), which, in turn, actuates the spindle assembly, thereby dropping a record to the turntable. With the stop dog (80B) properly adjusted,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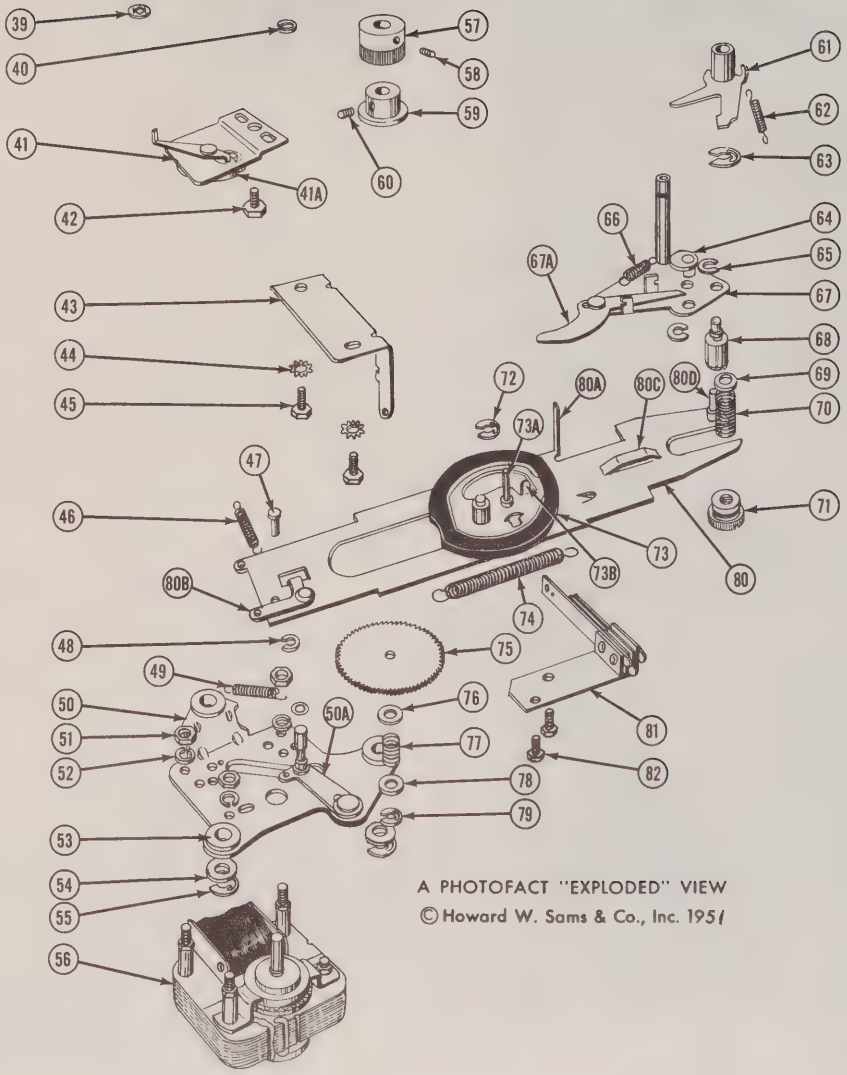

A PHOTOFACT "EXPLODED" VIEW

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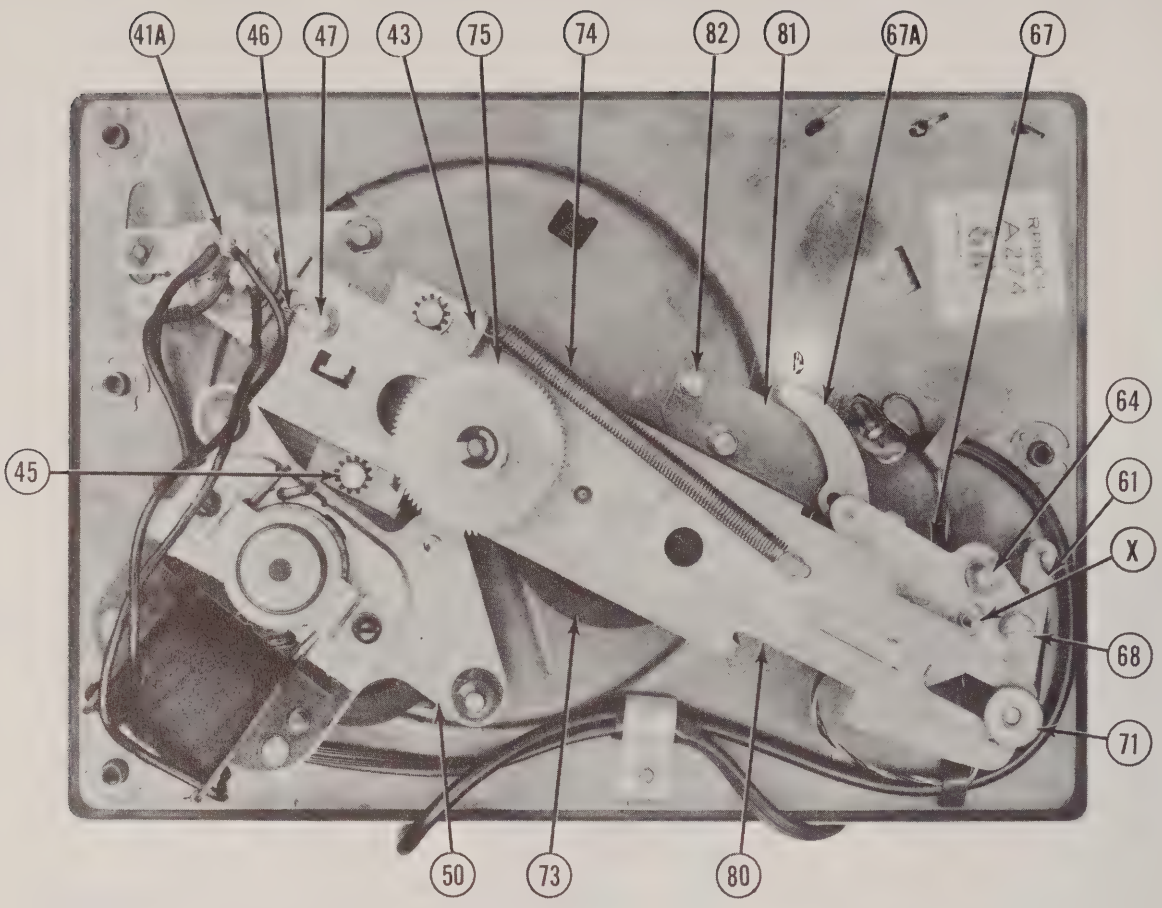


Figure 3

the record should drop to the turntable without striking the pickup arm. This adjustment is made by turning the eccentric screw (47)

TROUBLES

Pickup Arm Fails to Set Down Properly -

1. Spring (62) loose or missing.

(a) Replace spring (62).

2. Pickup arm out of adjustment.

(a) See "Pickup Arm Set-Down" Adjustment.

3. Pickup arm swivel (20) loose on shaft.

(a) See "Pickup Arm Set-Down" Adjustment.

Pickup Arm Fails to Clear a Stack of Records on Turntable -

1. Pickup arm height out of adjustment.

(a) See "Pickup Arm Height" Adjustment.

Records Hit Pickup Arm When Dropping to Turntable -

1. Stop dog (80B) out of adjustment.

(a) See "Stop Dog Adjustment."

2. Pickup arm swivel (20) not adjusted properly.

(a) See "Pickup Arm Set-Down" Adjustment.

Records Fail to Drop to Turntable -

1. Spring (46) loose or missing.

(a) Replace spring.

2. Ratchet wheel thrust spring (77) broken, thereby not maintaining the frictional condition set up between the ratchet (75) and the friction collar (59).

(a) Replace the thrust spring (77).

3. Stop dog (80B) binding in an outward position.

4. Friction collar (59) may be loose.

Distorted or No Output -

1. Muting switch (81) may be improperly set.

(a) See "Muting Switch Adjustment."

2. Pickup cartridge (13) may be defective.

3. Stylus may be defective.

4. Pickup leads may be shorted.

Pickup Skips Grooves -

1. Defective stylus.

2. Check for binds in the pickup arm pivots.

3. Stud (80D) may be loose, bent or missing.

Mechanism Fails to Trip Automatically -

1. Tab (73B) may be bent.

(a) Straighten tab so that it is perpendicular to the cam.

2. Cycling cam (73) may be defective.

3. Cycling cam may be binding on shaft.

4. Knurled roller (57) may be loose on turntable shaft.

5. Tripping stud (64) may be out of adjustment.

(a) See "Tripping Adjustment."

6. Trip lever spring (66) may be loose or missing

(a) Replace spring.

Continuous Tripping -

1. Mounting and stop bracket (43) out of adjustment.

(a) See "Mounting Bracket Adjustment."

2. Cam shaft on cycling wheel (73) may be bent.

Mechanism Fails to Complete Change Cycle -

1. Spring (74) loose or missing.

(a) If the slide assembly return spring (74) is loose, the cycling wheel (73) will not be held against the knurled roller (57). Replace spring.

2. Knurled roller (57) may be loose.

"Wow" or Speed Variation -

1. Turntable bearing (33) may be defective.

2. Mounting carriage (50A) for idler wheel may be binding.

3. Spring (49) tension insufficient, or spring may be loose.

4. Oil or grease on turntable rim and idler wheel.

(a) Clean with carbon tetrachloride.

LUBRICATION

The mechanism has been lubricated at time of manufacture, which should be sufficient for a long period of time; however, due to extreme usage, dust, lint or extreme heat, it may be necessary to thoroughly clean with carbon tetrachloride and lubricate as follows:

Use a light machine oil (SAE No. 10) on the bearings of the drive motor.

Use Sta-Put No. 320, or equivalent, on all bearing surfaces, except the motor bearings.

Use Sta-Put No. 512, or equivalent, on all other sliding surfaces.

NOTE: Do not oil or grease record separator shelves.

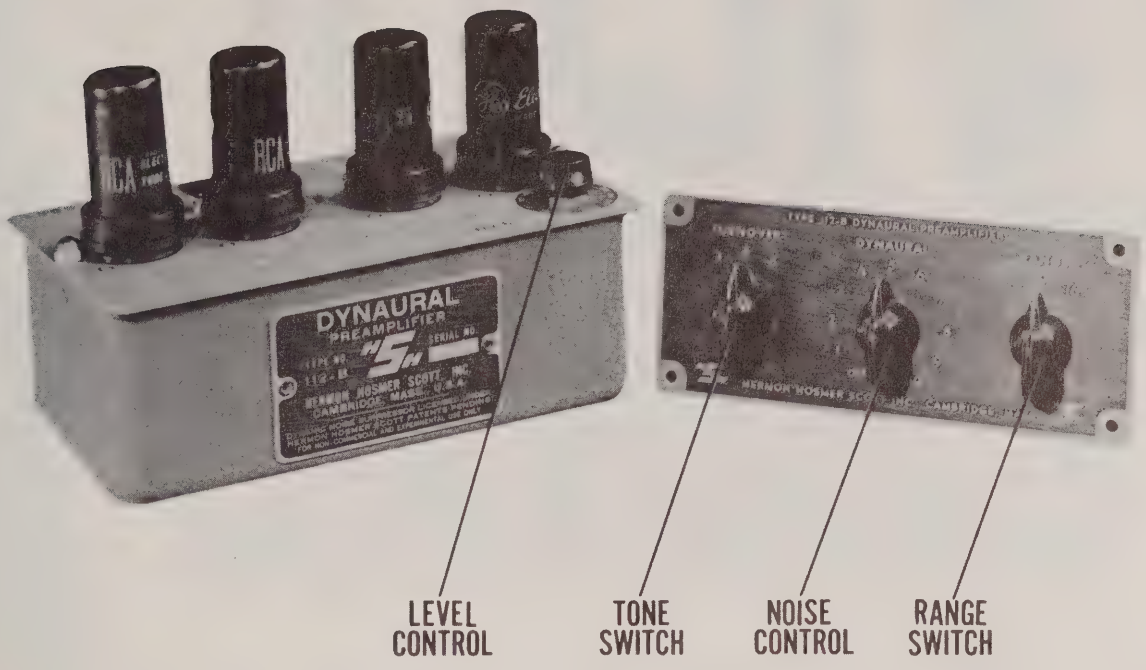
Do not let any grease or oil come in contact with the turntable rim or rubber surfaces of idler wheel (37) on motor. If oil or grease does come in contact with these parts, clean them with carbon tetrachloride.

PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	75755	Spindle Cap	12	75719	Pickup Arm Shell Only
2	748862	Spindle Nose Spring	13	75476	Cartridge Complete with Stylus (RP190-1)
3	74864	Separator Knife			
4	74865	Separator Shelf	14	75722	No. 4 x 1/4" Fillister Head Screw
5	75756	Separator Shelf Return Spring (.118" O.D. x 3/4" -16 Turns)	15	75721	Counterbalance Weight
			16	75723	No. 6 x 11/16" Fillister Head Screw
6	33726	"C" Washer to Hold Separator Shaft and Cam	17	75886	Counterbalance Spring (.180" O.D. x .600" - 30 turns)
7	75757	Separator Shaft with Cam	18	75727	Shock Absorbing Spring (.187" O.D. x 3/4")
8	75753	Turntable			
9	75754	Turntable Disc (Part of Item 8)	19	75724	Pin for Anchoring Shock Absorbing Springs
10	74869	No. 6 Flat Washer			
11	75758	No. 6-32 x 1" Fillister Head Machine Screw	20	75720	Pickup Arm Swivel
			21	75726	No. 8-32 x 5/8" Screw

Ref. No.	Part No.	Description
22	75725	No. 8-32 x 5/8" Hex Nut Internal Tooth Lockwasher
23	75731	Elevating Rod
24	35969	"C" Washer
25	75752	Thrust Washer
26		Bronze Bearing
27	75741	Control Knob
28	75748	Reject Lever Mounting Stud
29	75740	Reject Lever Spring
30	75739	Reject Lever Complete with Formed Spring
31	75742	Reject Lever Return Spring (.180" O.D. x .535" - 21-1/2 turns)
32	74080	Thrust Bearing Washer
33	72349	Thrust Bearing
34	74870	Idler Wheel Retainer (spring sleeve type)
35	75887	Spring Washer for Idler Wheel
36	74078	Dampening Washer for Idler Wheel
37	74077	Idler Wheel
38	75729	Baseplate
39	74212	Speed Nut for Control Knob
40	74431	Spring Washer to Mount Reject Lever Mounting Stud
41	75732	"On-Off" Switch Housing and Lever Less Switch
41A	75733	"On-Off" Switch
42		No. 8 x 1/4" Self-Tapping Hex Head Screw for Mounting Item 41
43	75735	Mounting Bracket for Slide Assembly
44	No. 8 External Teeth Lockwasher	
45	74670	No. 8 x 3/8" Self-Tapping Hex Head Screw
46	76765	Stop Dog Tension Spring (.195" O.D. x 11/16" -24-1/2 turns)
47	75766	Adjusting Stud for Stop Dog
48	74431	Spring Washer for Stop Dog Adjusting Stud
49	75762	Idler Wheel Tension Spring (.195" O.D. x 29/32" - 37-1/2 turns)
50	75759	Plate - Motor Mounting Plate Complete with Idler Wheel
51		No. 6-32 Hex Nut
52		No. 6 Split Lockwasher
53	75761	Rubber Grommet for Motor Mounting Plate
54	75749	Flat Washer - Metal (.0299" x .190" I.D. x 3/8" O.D.)
55	33726	"C" Washer
56	76760	Motor - 117 Volts, 60 Cycles A.C.
57	75737	Knurled Roller
58	75761	No. 10-32 x 17/64" Headless Set Screw Dog Point
59	75736	Friction Collar
60	14974	No. 8-32 x 3/16" Headless Set Screw Dog Poing
61	75734	Return Lever
62	75745	Pickup Arm Return Lever Spring (.195" O.D. x 1-1/4 - 66 turns)
63	35969	"C" Washer to Mount Return Lever
64	75768	Tripping Adjustment Stud
65	74431	Spring Washer for Adjusting Studs
66	75742	Trip Lever Spring (.180" O.D. x .535" - 21-1/2 turns)
67	75767	Trip Lever Assembly Less Spring and Tripping and Landing Adjustment Studs
68	75769	Landing Adjustment Stud
69	75749	Flat Washer-Metal (.0299" x190" I.D. x 3/8" O.D.)
70	75746	Height Adjustment Spring (.262" O.D. x 13/16" - 8 turns)
71	75747	Knurled Nut for Height Adjustment
72	33726	"C" Washer for Cam Wheel
73	75764	Cam Wheel and Tire
74	75744	Slide Assembly Return Spring (1/4" O.D. x 2-23/32" - 90 turns)
75	75738	Ratchet Wheel
76	76750	Flat Washer - Metal (.0299" x .180" I.D. x 9/16" O.D.
77	75743	Ratchet Wheel Thrust Spring (5/16" O.D. x 7/16" - 5-1/2 turns)
78	75750	Flat Washer - Metal (.0299" x .180 I.D. x 9/16" O.D.)
79	33726	"C" Washer to Mount Ratchet Wheel
80	75763	Cycling Slide Assembly Complete with Stop Dog Less Cam Wheel and Stop Dog Adjusting Stud
81	75730	Muting Switch
82		#8 x 1/4" Self Tapping Hex Head Screw

SCOTT
MODEL 112-B



TRADE NAME	H. H. Scott, Model 112-B (Dynaural Pre-amp)
MANUFACTURER	Hermon Hosmer Scott, Inc., 385 Putnam Ave., Cambridge 39, Mass.
TYPE SET	Audio Pre-amp with Treble and Bass tone compensation
TUBES (FOUR)	Types 6SC7 AF Amp., 6SG7 Treble Gate, 6SG7 Bass Gate, 6SQ7 AF Control
POWER SUPPLY	Power Plug from Audio Amplifier

SCOTT
MODEL 112-B

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1951 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		H. H. SCOTT PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6SC7	6SC7	8S	
V2	Treble Gate	6SG7	6SG7	8BK	
V3	Bass Gate	6SG7	6SG7	8BK	
V4	AF Control	6SQ7	6SQ7	8A	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

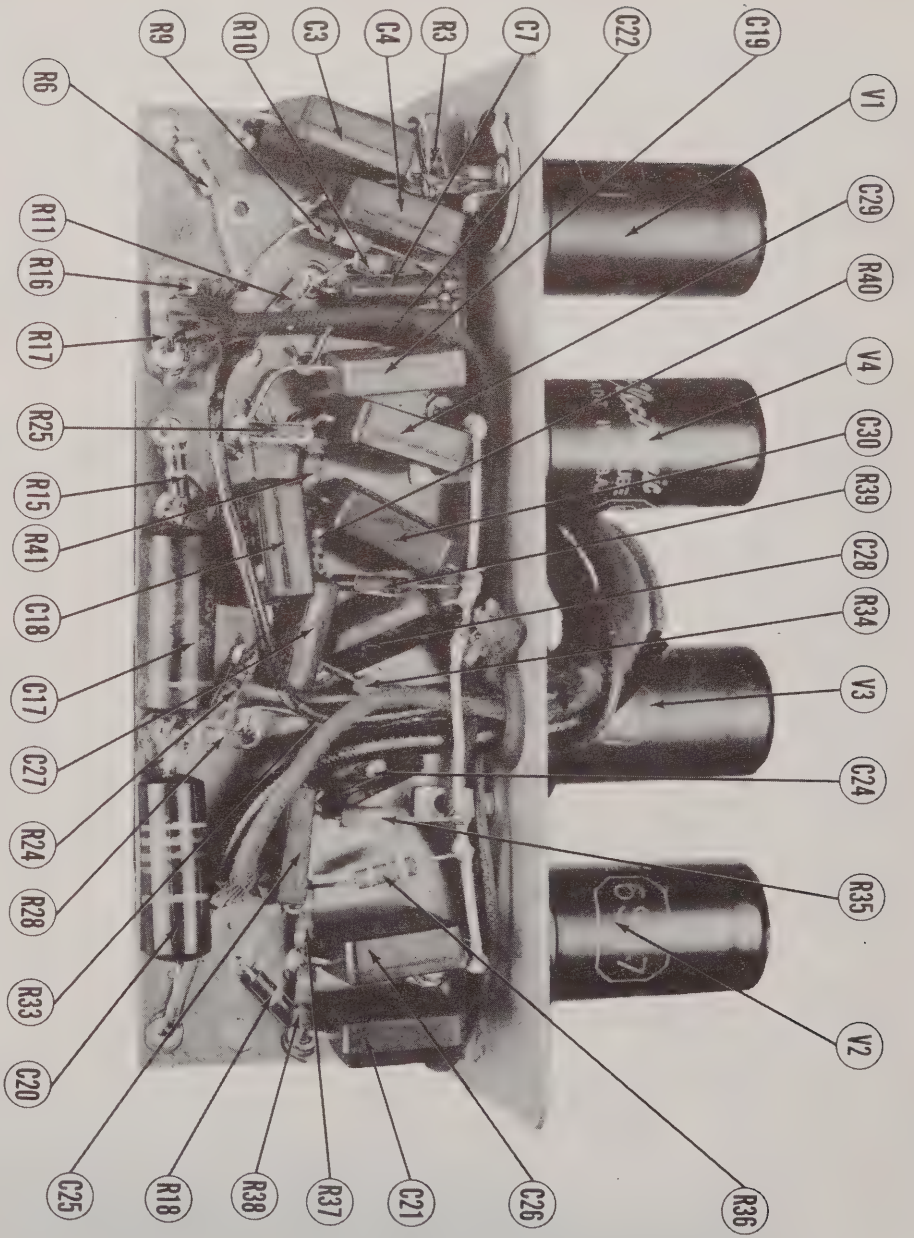
ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	H. H. SCOTT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	10	350		PRS350/12		BR1235A		R1120	Decoupling
B	100	15		PRS350/100-100		BRH151		R1120	AF Control Cathode
C	100	15				BRH151		R1120	Treble Gate Cathode
C2A	10	350		PRS450/10-10		BRD1145A		TVA-2722	Decoupling
B	10	350							Decoupling
C3	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C4	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Tone Comp.
C5	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Audio Coupling
C6	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C7	240	500		1468-00025		5W5T25	GP2K-241	1FM-325	Audio Coupling
C8	.02	400		P488-02	DF-203	PTE4S2		4TM-S2	Tone Comp.
C9	.047	400		P488-047	DF-503	PTE4S5		4TM-S47	Tone Comp.
C10	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Tone Comp.
C11	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Tone Comp.
C12	.02	400		P488-02	DF-203	PTE4S2		4TM-S2	Audio Coupling
C13	470	500		1468-0005	D6-471	5W5T5	GP2K-471	1FM-35	Audio Coupling
C14	.02	200		P488-02	DF-203	PTE4S2		2TM-S2	Treble Gate Screen
C15	.0033	400		P688-0033	D6-332	PTE6D3	GP2-333-332	6TM-D3	Tone Comp.
C16	1000	500		1468-001	D6-102	1W5D1	GP2L-102	1FM-21	Tone Comp.
C17	.047	400		P488-047	DF-503	PTE4S5		4TM-S47	Audio Coupling
C18	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D47	Audio Coupling
C19	2400	500		1467-0025	D6-252	5W5D25	GP2-333-252		AF Feedback
C20	.047	400		P488-047	DF-503	PTE4S5		4TM-S47	Audio Coupling
C21	.02	200		P488-02	DF-203	PTE4S2		2TM-S2	AF Feedback
C22	240	500		1468-00025		5W5T25	GP2K-241	1FM-325	Tone Comp.
C23	470	500		1468-0005	D6-471	5W5T5	GP2K-471	1FM-35	AF Control Grid
C24	240	500		1468-00025		5W5T25	GP2K-241	1FM-325	Treble Diode Coupling
C25	1000	500		1468-001	D6-102	1W5D1	GP2L-102	1FM-21	Treble Diode Coupling
C26	.02	200		P488-02	DF-203	PTE4S2		2TM-S2	Treble Diode Filter
C27	1000	500		1468-001	D6-102	1W5D1	GP2L-102	1FM-21	Bass Diode Coupling
C28	1000	500		1468-001	D6-102	1W5D1	GP2L-102	1FM-21	Bass Diode Filter
C29	.02	200		P488-02	DF-203	PTE4S2		2TM-S2	Bass Diode Filter
C30	.02	200		P488-02	DF-203	PTE4S2		2TM-S2	Bass Diode Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	H. H. SCOTT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	½			AG-58-S		Level Control
B	Shaft				RS-2		Attach to R1A per instructions
R2A	4K	½			AG-80-S	B-12	Noise Control - See Note
B	Shaft				RS-2	Not req.	Attach to R2A per instructions

Note - Some models use 2500Ω Control in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	H. H. SCOTT PART No.	IRC PART No.	
R3	22KΩ	½		BTS-22K	Input Shunt
R4	10Meg	½		BTS-10Meg	AF Amp. Grid
R5	220KΩ	½		BTS-220K	AF Amp. Plate
R6	47KΩ	½		BTS-47K	AF Amp. Decoupling
R7	100KΩ	½		BTS-100K	Tone Compensation
R8	22Meg	½		BTS-22Meg	AF Amp. Grid
R9	100KΩ	½		BTS-100K	AF Amp. Plate
R10	100KΩ	½		BTS-100K	Tone Compensation
R11	6800Ω	½		BTS-6800	Tone Compensation
R12	2.2Meg	½		BTS-2.2Meg	Tone Compensation
R13	2.2Meg	½		BTS-2.2Meg	Tone Compensation
R14	2.2Meg	½		BTS-2.2Meg	Tone Compensation
R15	4700Ω	2		BTS-4700	Tone Compensation
R16	4700Ω	½		BTS-4700	Decoupling
R17	4700Ω	½		BTS-4700	Decoupling
R18	220KΩ	½		BTS-220K	Treble Gate Grid
R19	100KΩ	½		BTS-100K	Treble Gate Screen
R20	220KΩ	½		BTS-220K	Treble Gate Plate
R21	33KΩ	½		BTS-33K	Voltage Divider
R22	2.2Meg	½		BTS-2.2Meg	Tone Compensation
R23	2.2Meg	½		BTS-2.2Meg	Tone Compensation
R24	1Meg	½		BTS-1Meg	Tone Compensation
R25	2.2Meg	½		BTS-2.2Meg	Bass Gate Grid
R26	1000Ω	½		BTS-1000	Bass Gate Cathode
R27	100KΩ	½		BTS-100K	Bass Gate Screen
R28	470KΩ	½		BTS-470K	Bass Gate Plate
R29	33KΩ	½		BTS-33K	Voltage Divider
R30	1.5Meg	½		BTS-1.5Meg	Tone Compensation
R31	100KΩ	½		BTS-100K	AF Control Grid
R32	330Ω	½		BTS-330	AF Control Cathode
R33	100KΩ	½		BTS-100K	AF Control Plate
R34	470KΩ	½		BTS-470K	Tone Compensation
R35	470KΩ	½		BTS-470K	Treble Filter Network
R36	4.7Meg	½		BTS-4.7Meg	Treble Filter Network
R37	470KΩ	½		BTS-470K	Treble Filter Network
R38	1Meg	½		BTS-1Meg	Treble Filter Network
R39	2.2Meg	½		BTS-2.2Meg	Bass Filter Network
R40	1Meg	½		BTS-1Meg	Bass Filter Network
R41	1Meg	½		BTS-1Meg	Bass Filter Network
R42	2.7Ω	1			Filament Dropping

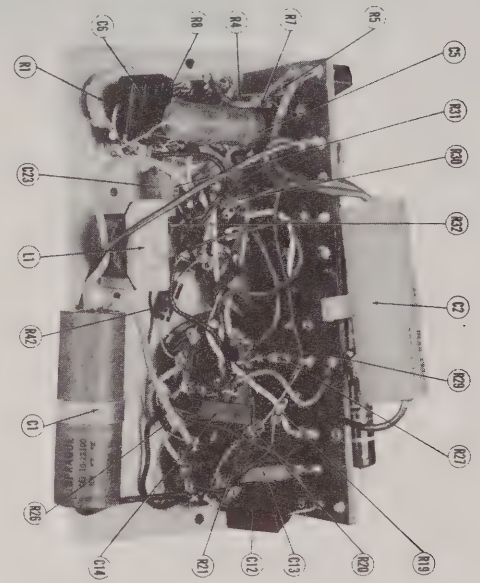
FILTER CHOKE

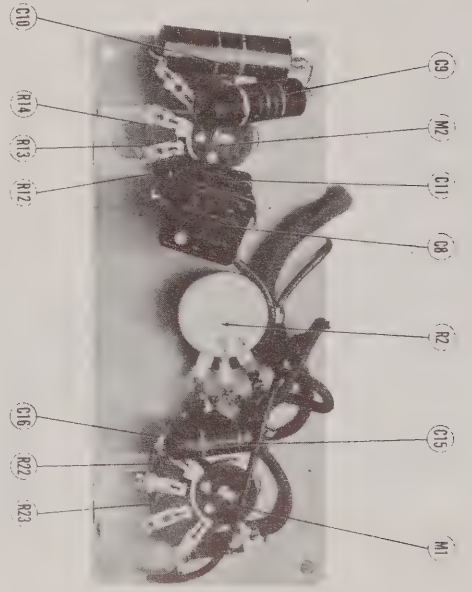
ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	H. H. SCOTT PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1		225Ω Tap 18Ω						

MISCELLANEOUS

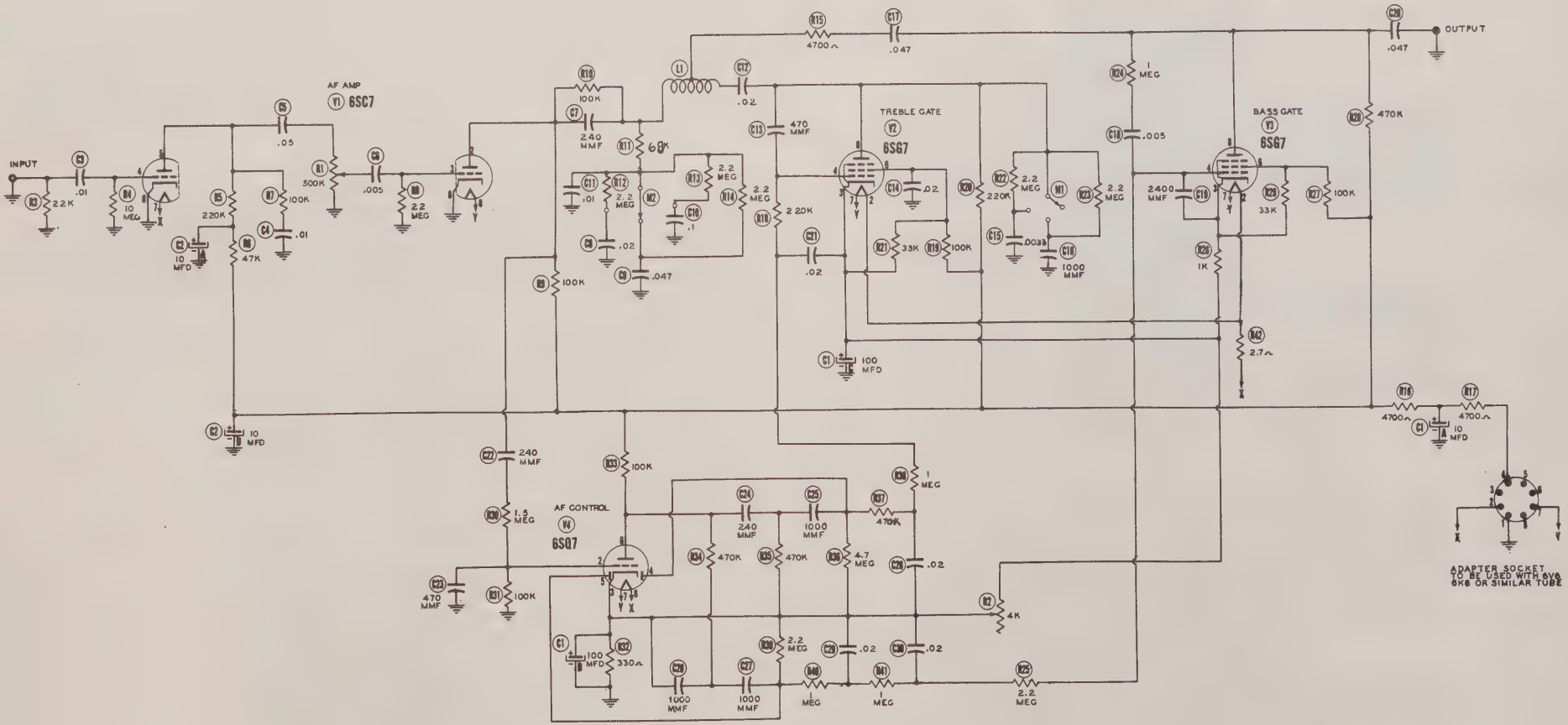
ITEM No.	PART NAME	H. H. SCOTT PART No.	NOTES
M1	Switch		Range
M2	Switch		Tone

CHASSIS—BOTTOM VIEW





H. H. SCOTT MODEL 112B



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SC7	0V	115VDC	-.5VDC	-.4VDC	85VDC	0V	†6.3VAC	†6.3VAC
V 2	6SG7	0V	†4.8VAC	13VDC	0V	13VDC	65VDC	†4.8VAC	205VDC
V 3	6SG7	0V	†4.8VAC	14VDC	0V	14VDC	65VDC	†4.8VAC	195VDC
V 4	6SQ7	0V	0V	1.2VDC	0V	.1VDC	145VDC	†6.3VAC	†6.3VAC

† MEASURED ACROSS FILAMENTS

TONE SWITCH ON 3- RANGE SWITCH ON 5

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SC7	0Ω	†110KΩ	22Meg	10Meg	†275KΩ	0Ω	▲1.7Ω	▲0Ω
V 2	6SG7	0Ω	▲1.8Ω	4.2KΩ	6.3Meg	4.2KΩ	97KΩ	▲1.7Ω	†230KΩ
V 3	6SG7	0Ω	▲1.8Ω	5.2KΩ	6.4Meg	5.2KΩ	98KΩ	▲1.7Ω	†470KΩ
V 4	6SQ7	0Ω	100KΩ	330Ω	4.7Meg	2.2Meg	†110KΩ	▲1.7Ω	▲0Ω

† MEASURED FROM PIN 4 OF ADAPTER PLUG.
▲ MEASURED FROM PIN 2 OF ADAPTER PLUG.

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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144-8

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

*TRADE MARK

SETCHELL CARLSON
MODELS 150, 2500, 2500LP

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MODEL 2500

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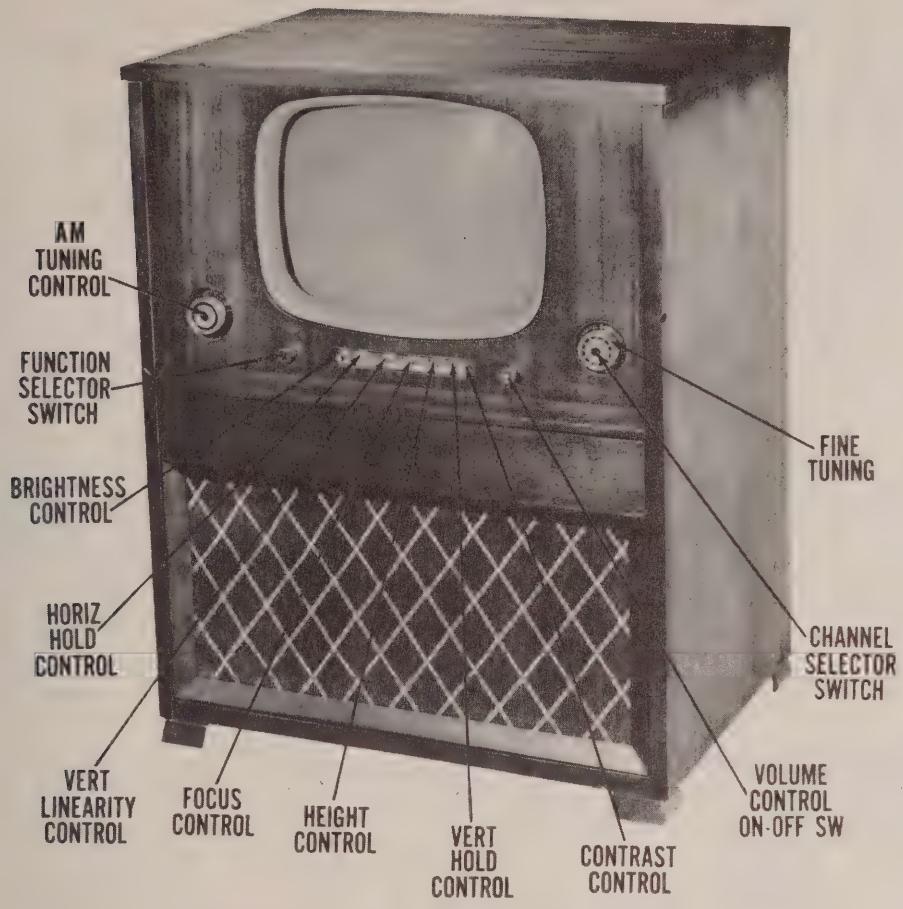
SETCHELL CARLSON
MODELS 150, 2500, 2500LP



SETCHELL-CARLSON MODEL 2500

TRADE NAME	Setchell-Carlson, Models 150, 2500, 2500LP (Chassis 25)
MANUFACTURER	Setchell-Carlson Inc., New Brighton, Minn.
TYPE SET	TV-AM Receiver
TUBES	Twenty-six
POWER SUPPLY	110-120 Volts AC-60Cycle — RATING 1.75 Amp. at 117 Volts AC
TUNING RANGE—	(TV) CHANNELS 2 thru 13 (AM) 540-1650KC

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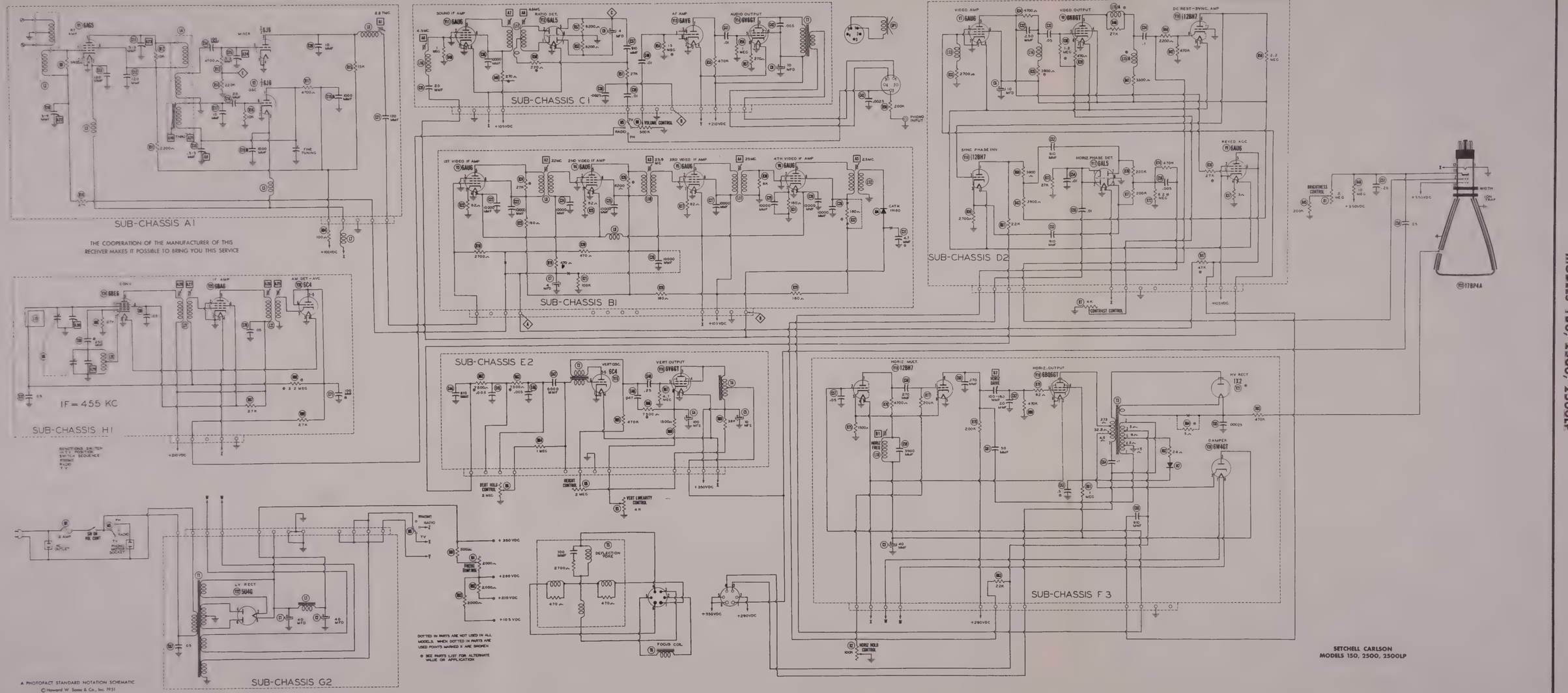
SUB-CHASSIS A1
SUB-CHASSIS C1
SUB-CHASSIS B1
SUB-CHASSIS D2
SUB-CHASSIS E2
SUB-CHASSIS F3
SUB-CHASSIS G2
SUB-CHASSIS H1
IF = 455 KC
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
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SETCHELL CARLSON
MODELS 150, 2500, 2500LP

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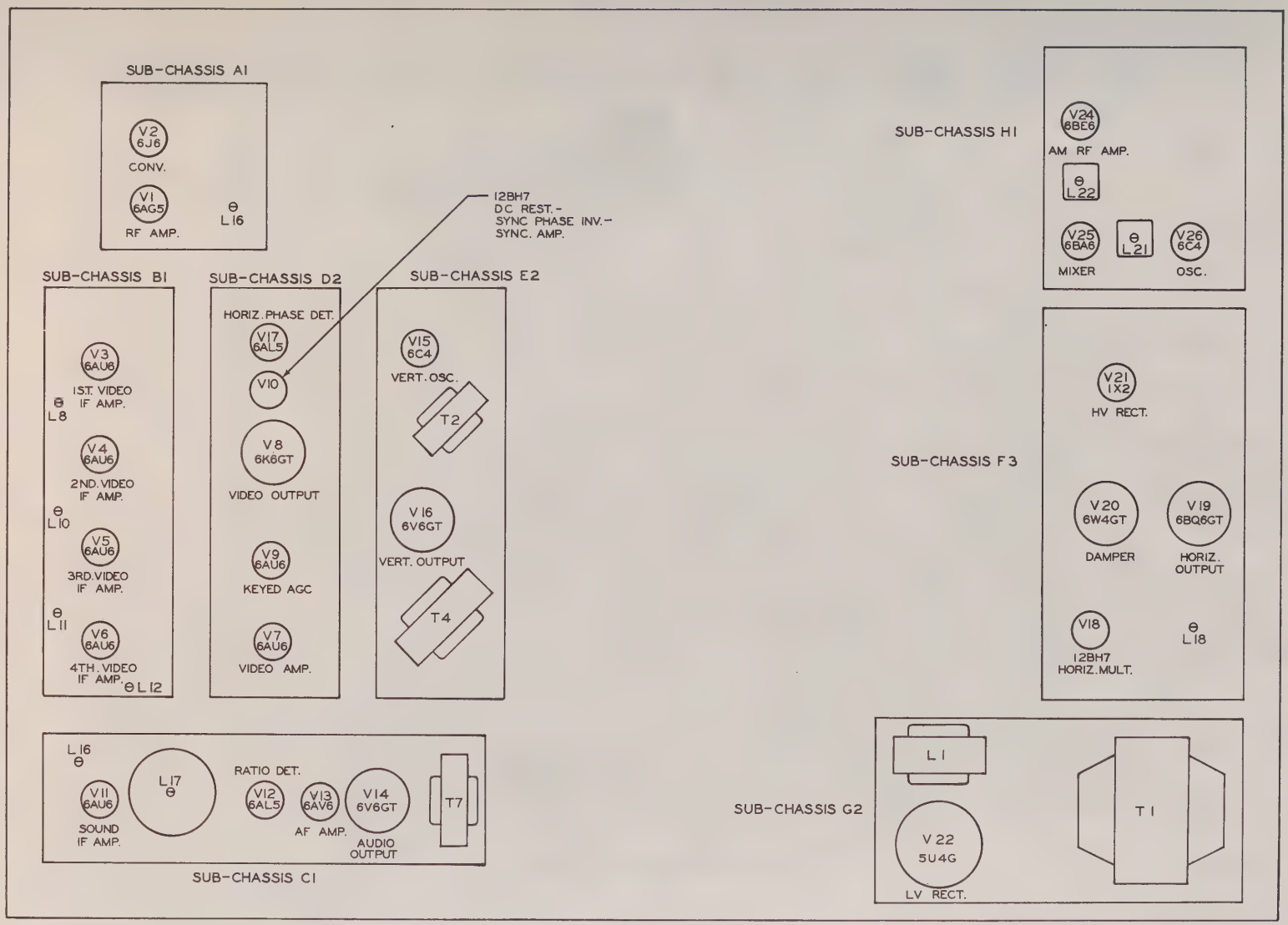
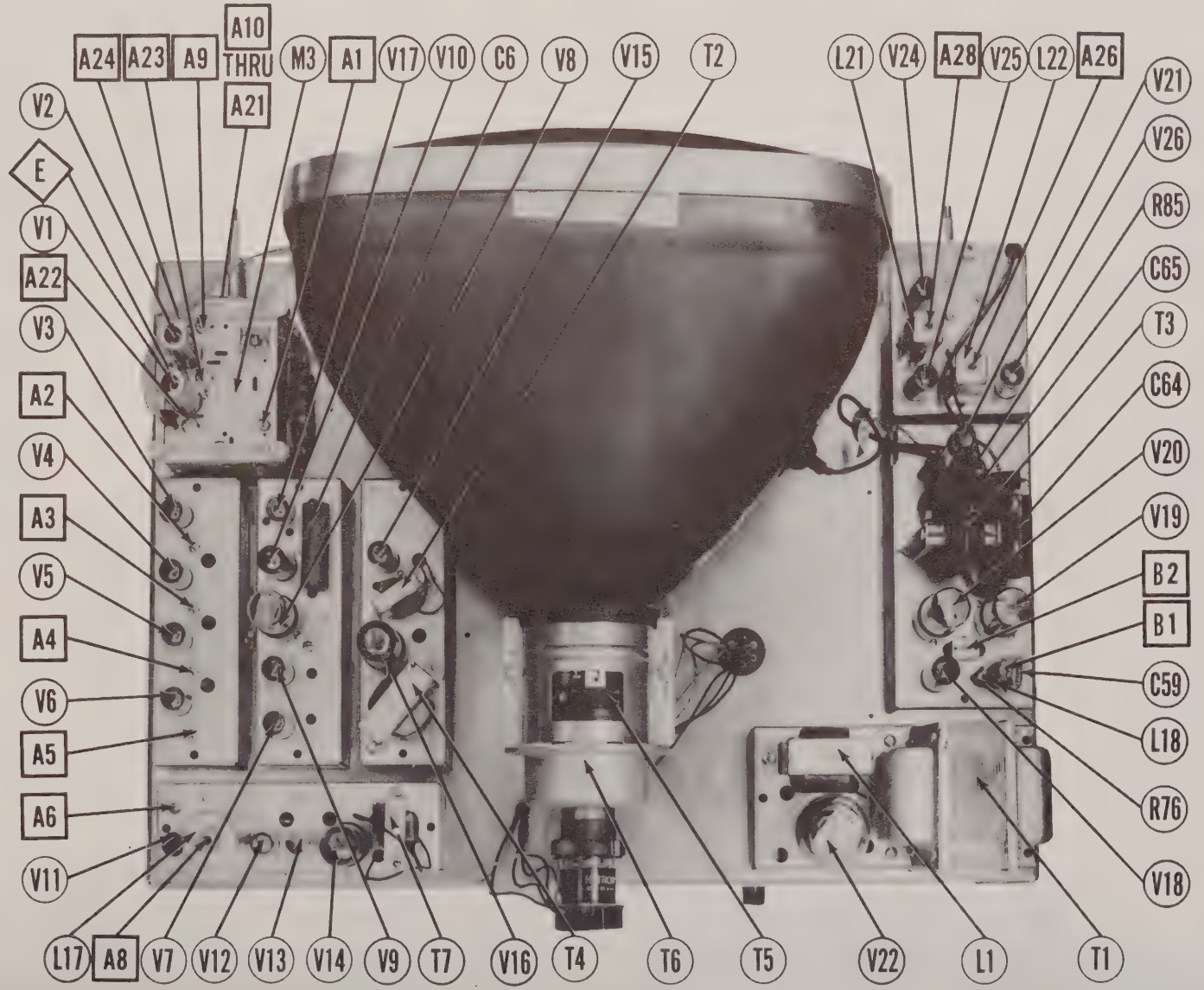
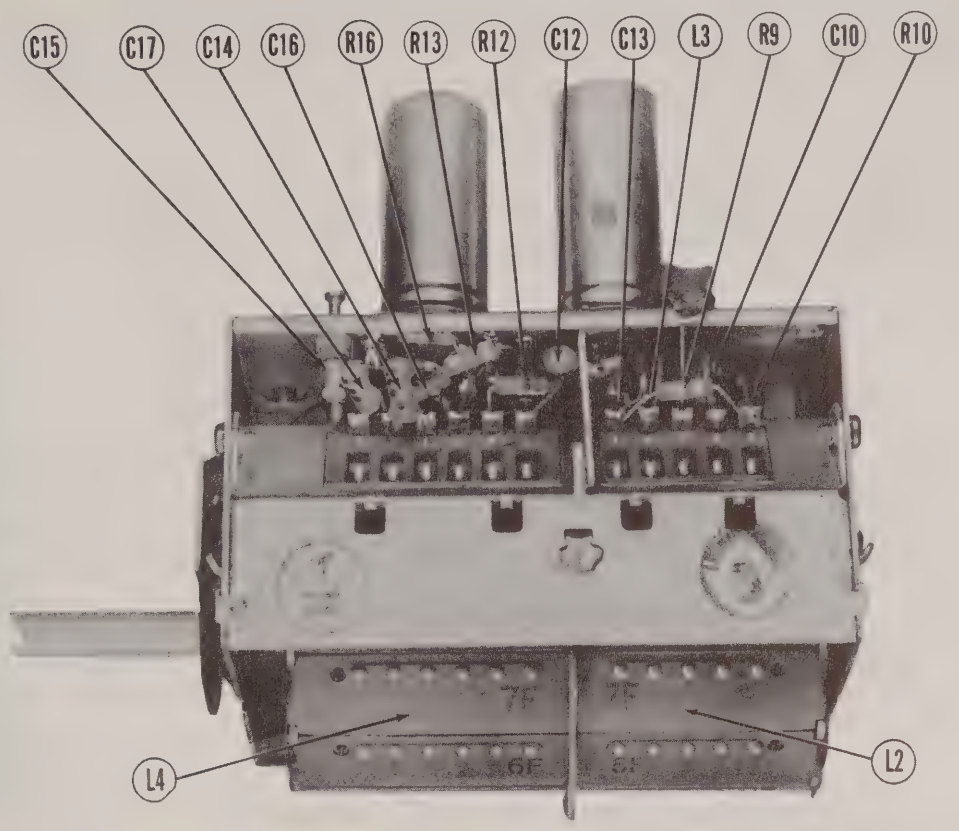


TOP VIEW

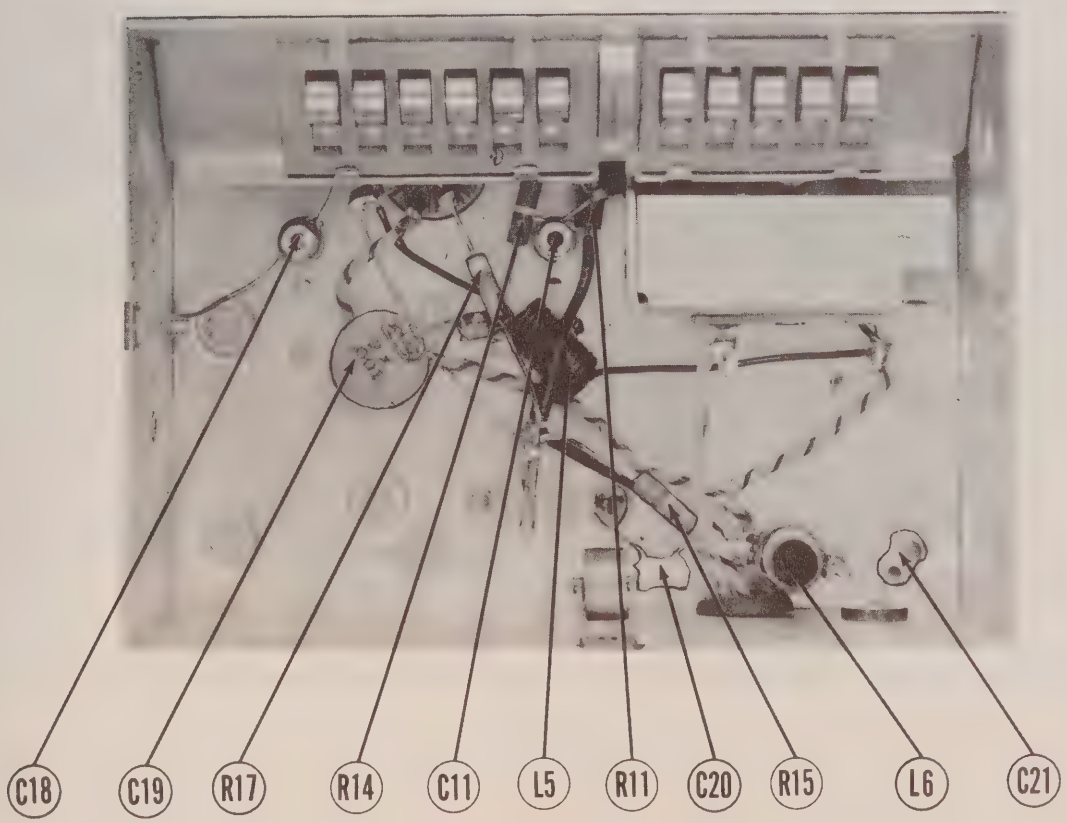
TUBE PLACEMENT CHART



CHASSIS TOP VIEW



SUB-CHASSIS A1



SUB-CHASSIS A1

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn the function selector switch to "TV", (clockwise).
The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to alignment Point A , connect the positive terminal to chassis.
During video IF alignment, the video IF chassis must be tight against the main chassis to prevent oscillations. Use some short bolts to hole this chassis down during alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	22.7MC (Unmod.)	Any	DC probe to point B . Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	22MC	"	"	A2	"
3.	"	"	23.9MC	"	"	A3	"
4.	"	"	25MC	"	"	A4, A5	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	24MC (10MC SWP)	21.25MC 25.75MC	Any	Vert. Amp. thru 22KΩ to point B . Low side to chassis.		Check for response curve similar to fig. 1. If necessary retouch A1 thru A5 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	22KΩ carbon resistor	High side thru 22KΩ to point B . Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point C . Common to chassis.	A6, A7	Adjust for maximum deflection.
7.	"	"	"	"	DC probe to point D . Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	22KΩ carbon resistor	High side thru 22KΩ to point B . Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. Amp. to point C . Low side to chassis.	A6, A7	Disconnect stabilizing capacitor C9. Adjust for maximum amplitude and symmetry as per fig. 2.
7.	"	"	"	"	"	Vert. Amp. to point D . Low side to chassis.	A8	Reconnect capacitor C9. Adjust A8 so 4.5MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A9. It should be noted that this is an all channel oscillator adjustment and should not be adjusted for any individual channel. If adjustment of A9 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminal with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to Point B . Low side to chassis.	A10	Adjust to place video marker at 50% as shown in fig. 4.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A11	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A12	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A13	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A14	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A15	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A16	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A17	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A18	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A19	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A20	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A21	

TV ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. Thru 10KΩ to Point E . chassis.	A22, A23, A24	Adjust for response curve similar to fig. 5 with markers above 90%.
10.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to fig. 5. If markers fall below 70% on any channel, make slight compromise adjustment of A22, A23, and A24 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

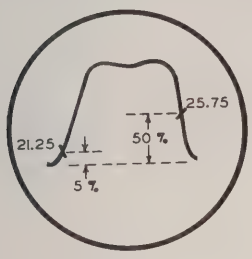


FIG. 1

FIG. 2

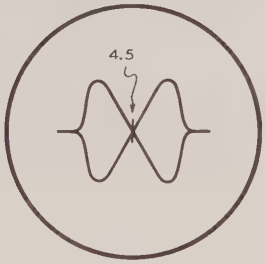


FIG. 3

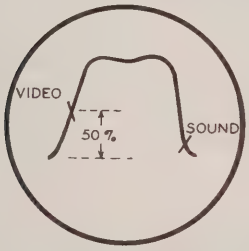


FIG. 4

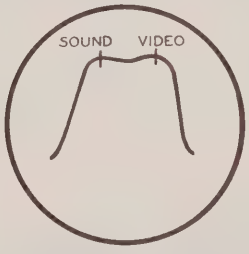


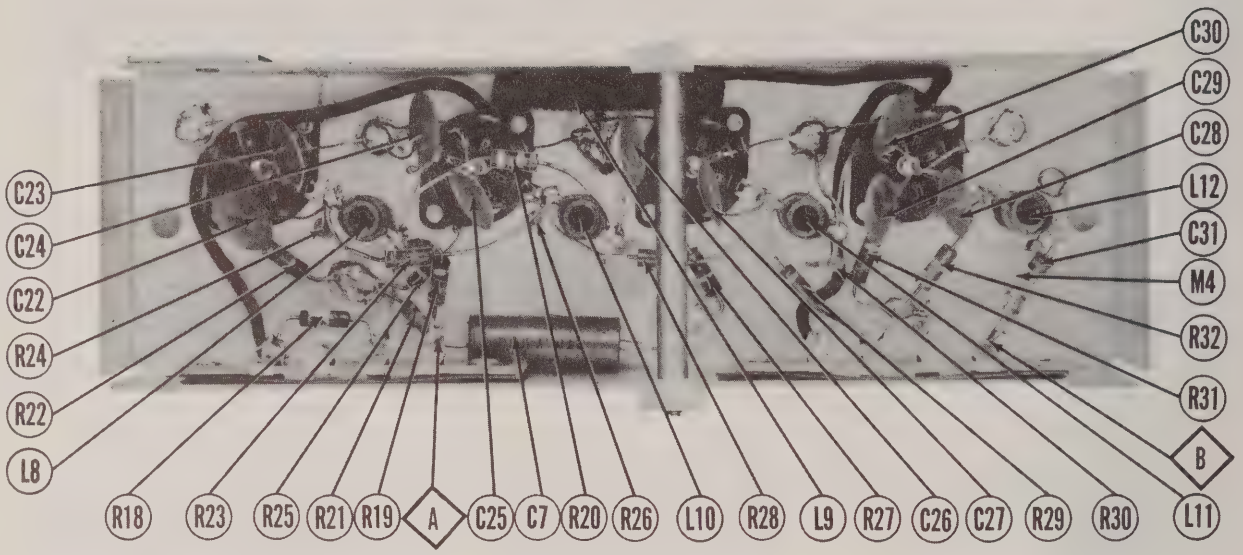
FIG. 5

RADIO ALIGNMENT INSTRUCTIONS

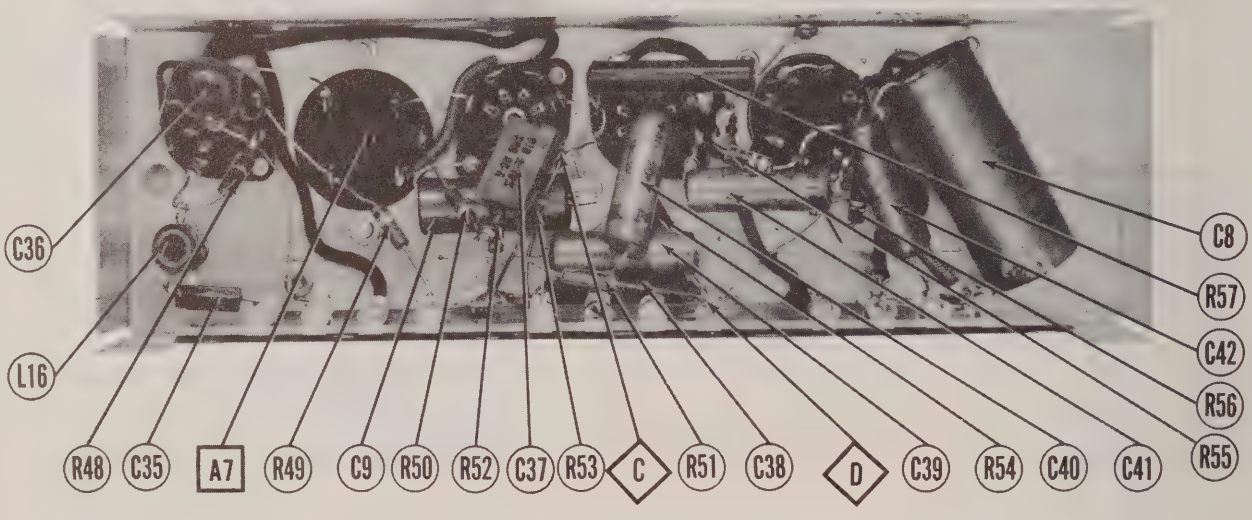
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn the function selector switch to "Radio" (Center).
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

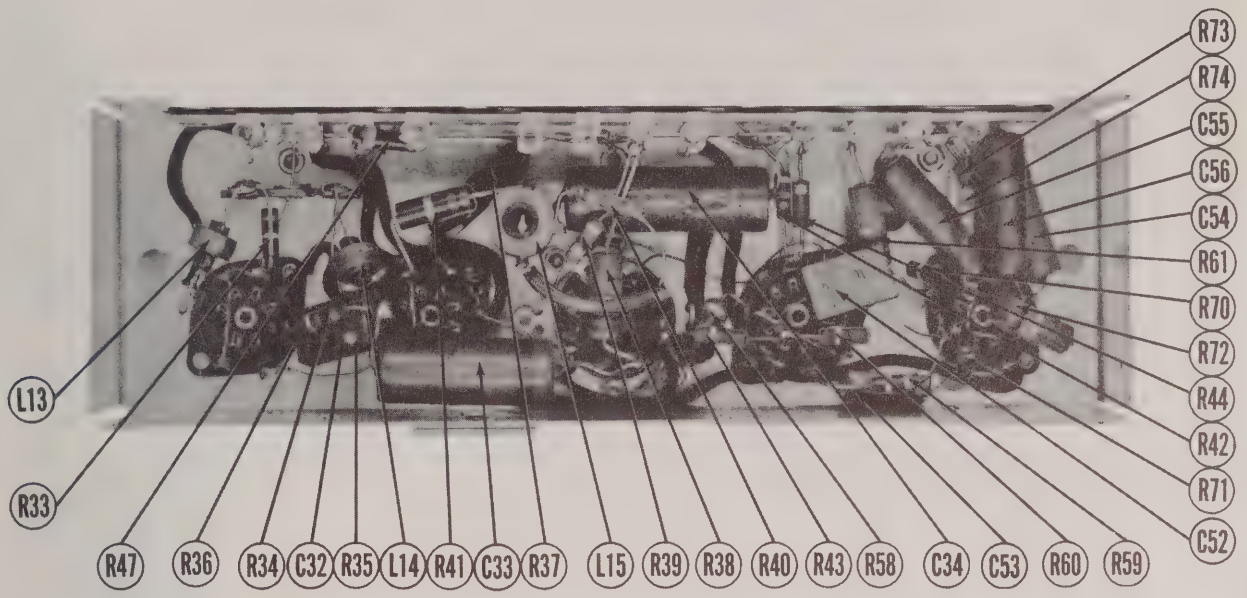
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
9.	.05MFD	High side to yellow lead on loop. Low side to chassis.	455KC (400∿Mod.)	AM	Tuning gang fully open.	Across voice coil.	A25, A26 A27, A28	Adjust for maximum output.
10.		Loop	1650KC		"	"	A29	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
11.		Loop	1400KC		Tune for maximum output.	"	A30	"



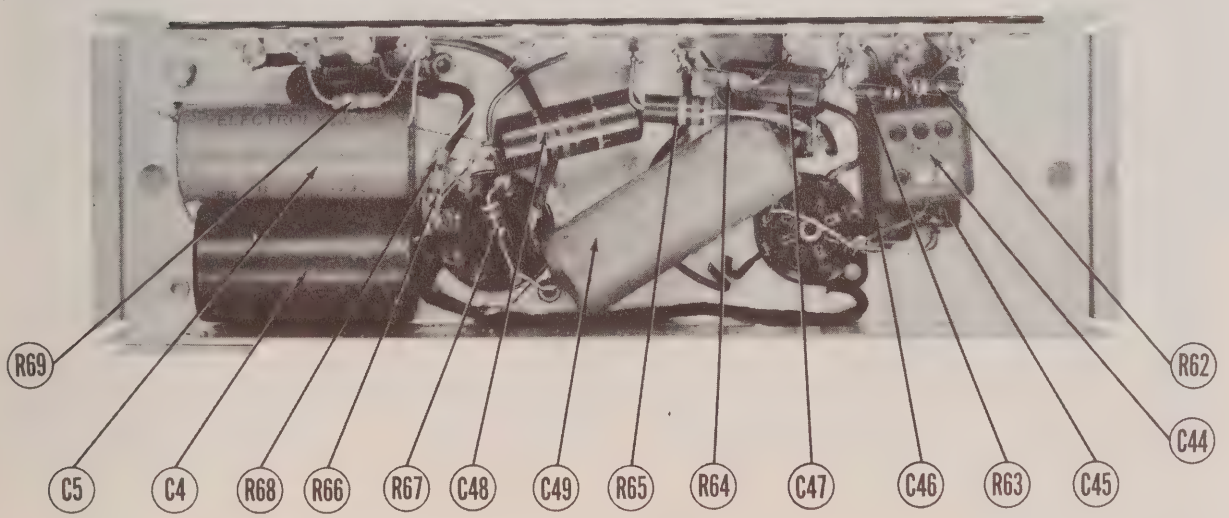
SUB-CHASSIS B1



SUB-CHASSIS C1



SUB-CHASSIS D2



SUB-CHASSIS E2

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.5VDC	0V	6.3VAC	0V	85VDC	85VDC	0V		
V 2	6J6	70VDC	70VDC	6.3VAC	0V	-1.8VDC	§-2VDC	0V		
V 3	6AU6	-.2VDC	0V	6.3VAC	0V	95VDC	95VDC	.5VDC		
V 4	6AU6	-.2VDC	0V	6.3VAC	0V	95VDC	95VDC	.5VDC		
V 5	6AU6	-.2VDC	0V	6.3VAC	0V	100VDC	100VDC	.4VDC		
V 6	6AU6	0V	0V	6.3VAC	0V	100VDC	100VDC	1.4VDC		
V 7	6AU6	-.3VDC	0V	0V	6.3VAC	21VDC	105VDC	0V		
V 8	6K6GT	0V	0V	85VDC	110VDC	0V §.9VDC	0V	6.3VAC	5VDC 35VDC	
V 9	6AU6	22VDC	110VDC	.6VAC	6.3VAC	-.5VDC	-.5VDC	110VDC		
V 10	12BH7	65VDC	22VDC	23VDC	6.3VAC	6.3VAC	22VDC	0V	2.6VDC	0V
V 11	6AU6	-.8VDC	0V	0V	6.3VAC	105VDC	105VDC	0V		
V 12	6AL5	0V	.3VDC	6.3VAC	0V	.1VDC	0V	-.1VDC		
V 13	6AV6	-.5VDC	0V	0V	6.3VAC	-1VDC	-1VDC	70VDC		
V 14	6V6GT	0V	0V	195VDC	210VDC	0V	195VDC	6.3VAC	10VDC	
V 15	6C4	70VDC 120VDC	0V	0V	6.3VAC	70VDC 12VDC	§-48VDC	0V		
V 16	6V6GT	30VDC 40VDC	0V	320VDC	320VDC	.1VDC	0V	6.3VAC	30VDC 40VDC	
V 17	6AL5	0V	0V	0V	6.3VAC	3.6VDC	0V	-3.4VDC		
V 18	12BH7	260VDC	§1.2VDC	13VDC	0V	0V	120VDC	§-5.5VDC §-8.4VDC	13VDC	6.3VAC
V 19	6BQ6GT	0V	6.3VAC	0V	100VDC	-16VDC	0V	0V	0V	Top Cap *
V 20	6W4GT	0V	0V	490VDC	0V	290VDC	0V	¶6.3VAC	¶6.3VAC	
V 21	1X2	* DO NOT MEASURE								Top Cap *
V 22	5U4G	0V	350VDC	0V	320VAC	0V	320VAC	0V	350VDC	
V24	6BE6	▲§-5.3VDC	▲0V	0V	▲6.3VAC	▲260VDC	▲75VDC	▲-.7VDC		
V25	6BA6	▲-.7VDC	0V	0V	▲6.3VAC	▲260VDC	▲90VDC	▲0V		
V26	6C4	▲-.6VDC	▲-.7VDC	0V	▲6.3VAC	▲-.6VDC	▲-.6VDC	▲0V		
V23	17BP4A	0V	3.2VDC	PIN 10 350VDC	PIN 11 7VDC 27VDC	PIN 12 6.3VAC	HV CONNECTOR ** §.5KV			

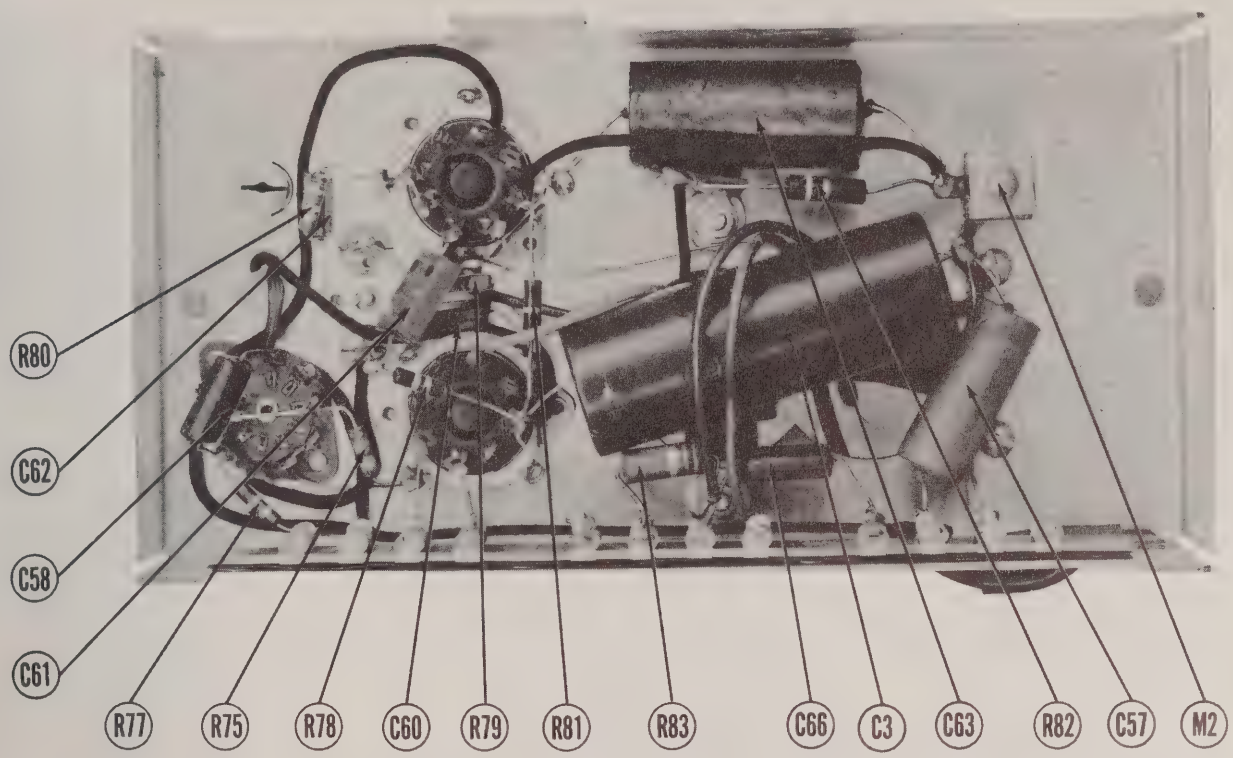
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
ALL MEASUREMENTS TAKEN IN TV POSITION UNLESS NOTED
FOCUS CONTROL FULLY COUNTER-CLOCKWISE
▲ MEASURED IN AM POSITION
§ TAKEN WITH VACUUM TUBE VOLTMETER
** USE EXTREME CAUTION WHEN MEASURING THIS VOLTAGE
* DO NOT MEASURE ¶ MEASURE ACROSS FILAMENTS

RESISTANCE READINGS

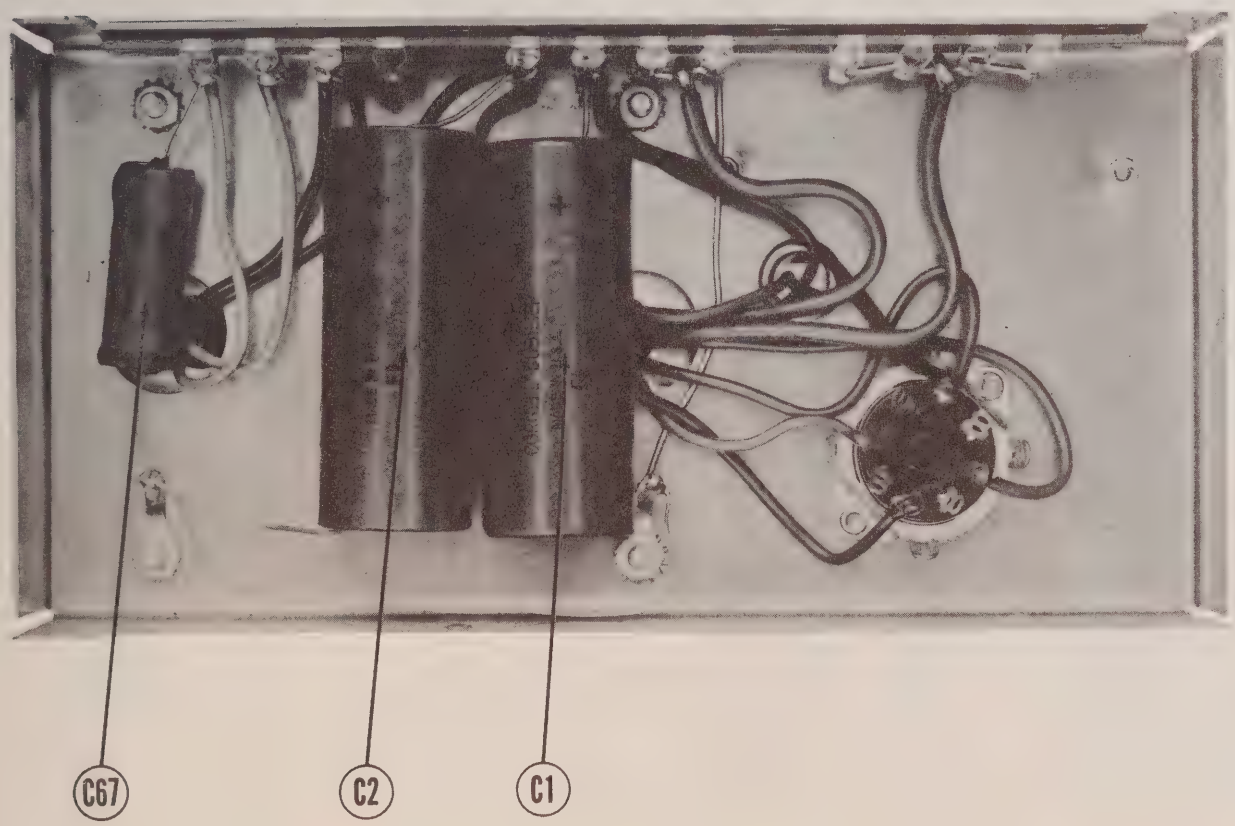
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	147KΩ	0Ω	.1Ω	0Ω	†4.6KΩ	†4.6KΩ	0Ω		
V 2	6J6	†7.1KΩ	†17KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AU6	100KΩ	0Ω	.1Ω	0Ω	†2.8KΩ	†2.8KΩ	82Ω		
V 4	6AU6	100KΩ	0Ω	.1Ω	0Ω	†2.7KΩ	†2.7KΩ	82Ω		
V 5	6AU6	100KΩ	0Ω	.1Ω	0Ω	†2.5KΩ	†2.5KΩ	82Ω		
V 6	6AU6	.4Ω	0Ω	.1Ω	0Ω	†2.5KΩ	†2.5KΩ	180Ω		
V 7	6AU6	2.7KΩ	0Ω	0Ω	.1Ω	†10KΩ	†2.3KΩ	0Ω		
V 8	6K6GT	Inf.	0Ω	†6.2KΩ	†2.3KΩ	1.2Meg	Inf.	.1Ω	5.4KΩ 470Ω	
V 9	6AU6	†37KΩ	†2.3KΩ	2.7Ω	.1Ω	147KΩ	147KΩ	†2.3KΩ		
V 10	12BH7	†10KΩ	†2.2Meg	2.7KΩ	.1Ω	.1Ω	†2.2Meg	0Ω	470KΩ	0Ω
V 11	6AU6	1Meg	0Ω	0Ω	.1Ω	†2.5KΩ	†2.5KΩ	0Ω		
V 12	6AL5	Inf.	Inf.	.1Ω	0Ω	8.2KΩ	0Ω	8.2KΩ		
V 13	6AV6	15Meg	0Ω	0Ω	.1Ω	Inf.	Inf.	†470KΩ		
V 14	6V6GT	0Ω	0Ω	†2.8KΩ	†2.4KΩ	1Meg	†2.4KΩ	.1Ω	270Ω	
V 15	6C4	†2.5Meg †510KΩ	Inf.	0Ω	.1Ω	†2.5Meg †510KΩ	3Meg 1Meg	0Ω		
V 16	6V6GT	13KΩ 9KΩ	0Ω	†1KΩ	†1KΩ	4.7Meg	Inf.	.1Ω	5.5KΩ 1.5KΩ	
V 17	6AL5	27KΩ	27KΩ	0Ω	.1Ω	6.4Meg	0Ω	6.4Meg		
V 18	12BH7	†4.9KΩ	6.7Meg	1.5KΩ	0Ω	0Ω	†200KΩ	300KΩ 200KΩ	1.5KΩ	.1Ω
V 19	6BQ6GT	Inf.	.1Ω	Inf.	†180KΩ	470KΩ	1.5Ω	0Ω	0Ω	Top Cap #34Ω
V 20	6W4GT	Inf.	Inf.	Inf.	Inf.	†270Ω	Inf.	¶.1Ω	¶.1Ω	
V 21	1X2	PINS 1-9 HAVE INF. RESISTANCE								Top Cap #300Ω
V 22	5U4G	Inf.	80KΩ	Inf.	60Ω	Inf.	55Ω	Inf.	80KΩ	
V24	6BE6	27KΩ	.5Ω	0Ω	▲.1Ω	†2.4KΩ	†32KΩ	▲2.7Meg		
V25	6BA6	▲2.7Meg	0Ω	0Ω	▲.1Ω	†2.4KΩ	†32KΩ	0Ω		
V26	6C4	▲527KΩ	▲2.7Meg	0Ω	▲.1Ω	▲527KΩ	▲527KΩ	12Ω		
V23	17BP4A	0Ω	470KΩ	PIN 10 †35Ω	PIN 11 2.2Meg 200KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
ALL MEASUREMENTS TAKEN IN TV POSITION UNLESS NOTED
FOCUS CONTROL FULLY COUNTER-CLOCKWISE
† MEASURED FROM PIN 8 OF V22
# MEASURED FROM PIN 3 OF V20
▲ MEASURED IN AM POSITION
¶ MEASURED ACROSS FILAMENTS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



SUB-CHASSIS F3



SUB-CHASSIS G2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SETCHELL-CARLSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd Video IF Amp.	6AU6	6AU6	7BK	
V6	4th Video IF Amp.	6AU6	6AU6	7BK	
V7	Video Amplifier	6AU6	6AU6	7BK	
V8	Video Output	6K6GT	6K6GT	7S	
V9	Keyed AGC	6AU6	6AU6	7BK	
V10	DC Restorer-Sync. -Amp.-Sync. Phase Inverter	12BH7	12BH7	9A	
V11	Sound IF Amp.	6AU6	6AU6	7BK	
V12	Ratio Detector	6AL5	6AL5	6BT	
V13	AF Amplifier	6AV6	6AV6	7BT	
V14	Audio Output	6V6GT	6V6GT	7AC	
V15	Vert. Oscillator	6C4	6C4	6BG	
V16	Vert. Output	6V6GT	6V6GT	7AC	
V17	Horiz. Phase Det.	6AL5	6AL5	6BT	
V18	Horiz. Mult.	12BH7	12BH7	9A	
V19	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V20	Damper	6W4GT	6W4GT	4CG	
V21A	HV Rectifier	1X2	1X2	7CB	
B	HV Rectifier	1X2A	1X2A	7CB	
V22	LV Rectifier	5U4G	5U4G	5T	
V24	Conv.	6BE6	6BE6	7CH	
V25	IF Amp.	6BA6	6BA6	7BK	
V26	AM Det. -AVC	6C4	6C4	6BG	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Setchell-Carlson Part No.	SYLVANIA Part No.	THOMAS Part No.	RTMA BASE TYPE	NOTES
V23	17BP4A	17BP4A	17BP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Setchell Carlson Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	SPRAGUE Part No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	40	450		PRS450/40		BR4045A		TVA-1712	Filter
C2	40	450		PRS450/40		BR4045A		TVA-1712	Filter
C3	40	450		PRS450/40		BR4045A		TVA-1712	Decoupling
C4	100	50		PR350/100		BRH501		TVA-1310	Vert. Output Cathode
C5	10	450		PRS450/10		BR1045A		TVA-1705	Vert. Output Decoupling
C6	10	450		PRS450/10		BR1045A		TVA-1705	Decoupling
C7	4	50		PRS150/4		BR550		TVA-1303	AGC Filter
C8	10	450		PRS450/10		BR1045A		TVA-1705	Audio Output Dec.
C9	4	50		PRS150/4		BR550		TVA-1303	Stabilizing Cap.
C10	3-9				829-10				Variable Trimmer
C11	.5-3				829-3				Variable Trimmer
C12	120			TCN-120			N750L-121		RF Amp. Decoupling
C13	100			SI100	D6-101		GP1K-101	5GA-T1	RF Amp. Fil.
C14	100			SI100N750	TCN-100		N750L-101	5TCU-T1	RF Coupling
C15	.5-3				829-3				Variable Trimmer
C16	20			SI20NP0	TCZ-20		NP0K-200		Osc. Grid Cap.
C17	10			SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C18	.5-3				829-3				Variable Trimmer
C19A	1000			BPD-2X001	DD-2-102		812-001	5HK-2D1	RF Bypass
B	1000								Conv. Fil.
C20	10			SI10NP0	TCZ-10		NP0K-100	5TCC-Q1	Fixed Trimmer
C21	120				TCN-120		N750L-121		IF Coupling
C22	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	1st. Video IF Dec.
C23	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	1st. Video IF Fil.
C24	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	AGC Filter
C25	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	2nd. Video IF Dec.
C26	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	AGC Filter
C27	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	3rd. Video IF Dec.
C28	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	4th. Video IF Dec.
C29	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	4th. Video IF Cathode
C30	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	4th. Video IF Fil.
C31	4.7			SI4.7NP0	TCZ-4.7		NP0K-4R7		Video Det. Filter *
C32	250	500		1468-00025	D6-251	5W5T25	GP2K-251	1FM-325	Video Coupling
C33	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Video Coupling
C34	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Video Coupling
C35	20	500		SI20		5W5Q2	GP1K-200	1FM-42	Sound IF Coupling
C36	10000			BPD-01	DD-103	1D3S1	821-01	5HK-S1	Sound IF Decoupling
C37	910	500		1464-0009		1W5T9		MS-31	Diode Load Cap.
C38	.0025	600		P688-0022	D6-252		GP2-333-252	6TM-D22	De-emphasis
C39	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C40	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C41	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C42	.005	400		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Output Plate
C43	.0025	400		P688-0022	D6-252		GP2-333-252	6TM-D22	Phono Tone Comp.
C44	910	500		1464-0009		1W5T9		MS-31	Integrator Net.
C45	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Integrator Net.
C46	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Integrator Net.
C47	5000	500		1467-005	D6-502	1D5D5	GP2-333-502	1FM-25	Vert. Sync. Coupling
C48	.047	400		P488-047	DF-503	PTE4S5		4TM-S47	Vert. Discharge
C49	.25	400		P488-25		GT4P25		4TM-P25	Vert. Sweep Coupling
C50	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Vert. Sweep Coupling
C51	.25	400		P488-25		GT4P25		4TM-P25	Picture Tube Cathode
C52	910	500		1464-0009		1W5T9		MS-31	Horiz. Sync. Coupling
C53	910	500		1464-0009		1W5T9		MS-31	Horiz. Sync. Coupling
C54	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	AFC Filter
C55	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	AFC Filter
C56	.005	400		P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	AFC Filter

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Setchell-Carlson Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	SPRAGUE Part No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C57	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Horiz. MV Grid
C58	270	500		1469-0003		5R5T3		MS-33	Horiz. MV Feedback
C59	3900	500		1464-004		1DR5D4			Fixed Trimmer
C60	270	500		1469-0003		5R5T3		MS-33	Horiz. Discharge
C61	50	500		1468-00005	D6-500	5W5Q5	GP1K-500	1FM-45	Horiz. Feedback
C62	20	500		SI20		5W5Q2	GP1K-200	MS-42	Voltage Divider
C63	.5	200		P288-5		GT2P5		2TM-P5	Horiz. Output Screen †
C64	.1	800		1684-1					Horiz. Sweep Coupling
C65	.00025	12500		1584-00025				12TVM-325	HV Filter
C66	910	500		1464-0009		1W5T9		MS-31	Horiz. Sweep Coupling
C67	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Line Filter
C68	250	500		1468-00025	D6-251	5W5T25	GP2K-251	1FM-325	Osc. Grid Cap. †
C69	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Osc. Anode Cap.
C70	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	IF Amp. Plate Dec.
C71	100	500		1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Det. RF Filter ¶
C72	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	AVC Filter

* Not used in all models.
† Some models use .25MFD in this application.
‡ Some models use 100MMF in this application.
¶ Some models use 250MMF in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Setchell Carlson Part No.	IRC Part No.	CLAROSTAT Part No.	CENTRALAB Part No.	INSTALLATION NOTES
R1A	2Meg	½		Q11-139	AG-83-S	B-75	Brightness Control
B	Shaft			Not Req.	FS-3	Not Req.	Attach to R1A Per Instructions
R2A	100KΩ	½		Q11-128	AG-49-S	B-40	Horiz. Hold Control
B	Shaft			Not Req.	FS-3	Not Req.	Attach to R2A Per Instructions
R3A	4000Ω	½		Q11-114	AG-80-S	B-10	Vert. Linearity Control
B	Shaft			Not Req.	FKS-1/4	Not Req.	Attach to R3A Per Instructions
R4	2000Ω	4			RTV-187	SVP-987	Focus Control-Wire Wound
R5A	2Meg	½		Q11-139	AG-83-S	B-75	Height Control
B	Shaft			Not Req.	FKS-1/4	Not Req.	Attach to R5A Per Instructions
R6A	2Meg	½		Q11-139	AG-83-S	B-75	Vert. Hold Control
B	Shaft			Not Req.	FKS-1/4	Not Req.	Attach to R6A Per Instructions
R7A	4000Ω	½		Q11-114	AG-80-S	B-10	Contrast Control
B	Shaft			Not Req.	FS-3	Not Req.	Attach to R7A Per Instructions
R8A	500KΩ	½		Q13-133	AG-60-Z	B-60-S	Volume Control
B	Shaft			Not Req.	FS-3	Not Req.	Attach to R8A Per Instructions
C	Switch			76-1	SWB	Not Req.	Attach to R8A Per Instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Setchell Carlson Part No.	IRC Part No.	IDENTIFICATION CODES: ALL RESISTORS ±10% UNLESS OTHERWISE SPECIFIED
R9	3900Ω			BTS-3900	Antenna Coil Shunt
R10	47KΩ	20%		BTS-47K	AGC Network
R11	2200Ω	20%		BTS-2200	RF amp. Decoupling
R12	10KΩ	20%		BTS-10K	RF Coil Shunt
R13	4700Ω			BTS-4700	Mixer Grid
R14	220KΩ			BTS-220K	Mixer Grid
R15	15KΩ	20%			Mixer Plate
R16	10KΩ			BTS-10K	Osc. Grid
R17	4700Ω			BTS-4700	Osc. Plate
R18	2700Ω			BTS-2700	AGC Network
R19	470Ω			BTS-470	AGC Network - See Note 2
R20	470Ω			BTS-4700	AGC Network
R21	100KΩ			BTS-100K	AGC Network
R22	82Ω			BTS-82	1st. Video IF Amp. Cathode
R23	180Ω			BTS-180	1st. Video IF Amp. Decoupling
R24	27KΩ				2nd. Video IF Transformer Shunt - See Note 3
R25	82Ω			BTS-82	2nd. Video IF Amp. Cathode
R26	8200Ω	20%		BTS-8200	3rd. Video IF Transformer Shunt - See Note 4
R27	82Ω			BTS-82	3rd. Video IF Amp. Cathode
R28	180Ω			BTS-180	Decoupling - See Note 5
R29	180Ω			BTS-180	Decoupling - See Note 6
R30	800Ω	20%			4th. Video IF Transformer Shunt
R31	180Ω			BTS-180	4th. Video IF Amp. Cathode
R32	180Ω			BTS-180	4th. Video IF Amp. Decoupling - See Note 1
R33	2700Ω			BTS-2700	Video Det. Diode Load
R34	4700Ω			BTS-4700	Video Amp. Plate
R35	3900Ω			BTS-3900	Video amp. Plate - See Note 4
R36	27KΩ			BTS-27K	Isolation - See Note 3
R37	3Ω			BW-1-3	Keyed AGC Filament - Wire Wound
R38	1.2Meg			BTS-1.2Meg	Video Output Grid - See Note 7
R39	470Ω			BTS-470	Video Output Cathode
R40	27KΩ	20%		BTS-27K	Video Peaking Coil Shunt
R41	3300Ω			BTA-3300	Video Output Plate
R42	470KΩ			BTS-470K	DC Restorer Diode Load
R43	3900Ω	20%		BTS-3900	Phase Inv. Plate
R44	2200Ω			BTS-2200	Picture Tube Grid
R45	200KΩ			BTS-220K	Picture Tube Cathode
R46	10Meg			BTS-10Meg	Voltage Divider
R47	47KΩ	20%		BTS-47K	AGC Network - See Note 8
R48	1Meg			BTS-1Meg	Sound IF Amp. Grid
R49	270Ω	20%		BTS-270	Sound IF Amp. Decoupling - See Note 9
R50	220Ω	20%		BTS-220	Balancing - See Note 10
R51	27KΩ	20%		BTS-27K	De-emphasis
R52	8200Ω			BTS-8200	Ratio Det. Diode Load
R53	8200Ω			BTS-8200	Ratio Det. Diode Load
R54	15Meg			BTS-15Meg	AF Amp. Grid - See Note 11
R55	470KΩ			BTS-470K	AF Amp. Plate
R56	1Meg			BTS-1Meg	Output Grid
R57	270Ω			BTB-270	Output Cathode
R58	2.2Meg			BTS-2.2Meg	Sync. Amp. Plate
R59	2700Ω			BTS-2700	Phase Inv. Cathode
R60	3900Ω	20%		BTS-3900	Phase Inv. Plate
R61	22KΩ			BTA-22K	Integrator
R62	7500Ω	5%			Integrator - See Note 12

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Setchell-Carlson Part No.	IRC Part No.	IDENTIFICATION CODES
R63	7500Ω 5%				Integrator - See Note 12
R64	1Meg			BTS-1Meg	Vert. Osc. Grid
R65	470KΩ 20%	1		BTA-470K	Vert. Osc. Plate
R66	7500Ω 5%				Vert. Peaking - See Note 12
R67	4.7Meg			BTS-4.7Meg	Vert. Output Grid
R68	1500Ω			BTS-1500	Vert. Output Cathode
R69	39KΩ 20%			BTS-39K	Decoupling - See Note 2
R70	200KΩ			BTS-220K	Horiz. Phase Det. Diode Load
R71	200KΩ			BTS-220K	Horiz. Phase Det. Diode Load
R72	6.2Meg				Horiz. Phase Det. Diode Load - See Note 13
R73	27KΩ			BTS-27K	Horiz. Phase Det. Diode Load
R74	470KΩ			BTS-470K	Horiz. AFC Filter
R75	1500Ω			BTS-1500	Horiz. MV Cathode
R76	4700Ω			BTS-4700	Horiz. MV Plate
R77	200KΩ			BTS-220K	Horiz. MV Grid
R78	200KΩ			BTS-220K	Horiz. MV Plate
R79	82 Ω	20%			Parasitic Suppressor
R80	470KΩ			BTS-470K	Horiz. Output Grid
R81	1Meg			BTS-1Meg	Horiz. Output Screen
R82	24Ω			BW-½-24	Current Limiting - Wire Wound
R83	22KΩ	1		BTA-22K	Horiz. Feedback
R84	5Ω				HV Rectifier Filament - See Note 1
R85	470KΩ				HV Filter
R86	27KΩ			BTS-27K	Osc. Grid
R87	27KΩ	1		BTA-27K	Decoupling
R88	2.2Meg			BTS-2.2Meg	AVC Network - See Note 13
R89	27KΩ			BTS-27K	AVC Network
R90	200KΩ			BTS-220K	Tone Compensation
R91	500Ω	3			Focus Coil Shunt - Wire Wound
R92	2000Ω	10		1 3/4A-2000	Decoupling - Wire Wound
R93	2000Ω	10		1 3/4A-2000	Decoupling - Wire Wound
R94	100Ω	5		1 3/4A-100	Decoupling - Wire Wound

Note 1 Not used in all models.
Note 2 Some models use 47KΩ Resistor in this application.
Note 3 Some models use 39KΩ Resistor in this application.
Note 4 Some models use 4700Ω Resistor in this application.
Note 5 Some models use 3900Ω Resistor in this application.
Note 6 Some models use 1500Ω Resistor in this application.
Note 7 Some models use 1Meg Resistor in this application.
Note 8 Some models use 200KΩ Resistor in this application.
Note 9 Some models use 470Ω Resistor in this application.
Note 10 Some models use 180Ω Resistor in this application.
Note 11 Some models use 5Meg Resistor in this application.
Note 12 Some models use 8200Ω Resistor in this application.
Note 13 Some models use 4.7Meg Resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Setchell Carlson Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.
T1	117VAC @ 1.75A	700VCT .225ADC	5VAC @3A	6.3VAC @ 1.2A SEC. 4 6.3VAC @7.8A	M575			

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Setchell Carlson Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	NOTES
T2	280Ω	1.1KΩ	M573	A-8111 ①	A-3000 ①	TBO-1	Vert. Block Osc. Trans.
T3	300Ω Taps @ 4.5Ω & 37Ω	8Ω Taps @ 1.5Ω 2.10&3Ω SEC. 2	70-83				Horiz. Output Trans.
		0Ω					
T4	950Ω	11Ω	M572	A-8123	A-3036		Vert. Output Trans.
T5A	11.5Ω			DY-7	MDF-70		Horiz. Deflection Coils
B	68Ω						Vert. Deflection Coils
T6	235Ω						Focus Coil

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Setchell Carlson Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	INSTALLATION NOTES
T7	5.5KΩ	4Ω -	410Ω	.5Ω	M580	A-3877	A-2930		

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	REPLACEMENT DATA: Setchell Carlson Part No.	VIKING Part No.	QUAM Part No.	NOTES
SP1	PM	4Ω	120-10	10J12	10A4A	
	CONE DIA.	V. C. DIA.				
SP2	9½	9/16				

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	Setchell Carlson PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.225A	38Ω	2 Henries	M571				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Setchell Carlson PART No.	MEISSNER PART No.	
L2	Ant. Coil	0Ω	0Ω			
L3	Fil. Choke	0Ω				
L4	RF Mixer Grid and Osc. Coils	0Ω				
L5	Fil. Choke	0Ω				
L6	1st Video IF	1.1Ω				
L7	Fil. Choke	0Ω				
L8	2nd Video IF	.4Ω	.4Ω	B72A83-3		
L9	Fil. Choke	0Ω		FC-103		
L10	3rd Video IF	.4Ω	.4Ω	B72A83-3		
L11	4th Video IF	.4Ω	.4Ω	B72A83-3		
L12	5th Video IF	.4Ω	.4Ω	B72A83-3		
L13	Peaking	11Ω		D2000		
L14	Peaking	11Ω		D2000		
L15A	Peaking	6.5Ω		TV121-3		
B	Peaking	7.5		TV121-3		
L16	Sound IF	7Ω		72A60-1		
L17	Ratio Det. Trans.	4Ω	.1Ω	13M17273		Tap .5Ω
L18	Horiz. Osc.	50Ω		94A17		
L19	Loop Ant.	3.4Ω		TV8089		
L20	AM Osc.	5.5Ω		416C		Tap .4Ω
L21	1st AM IF	12Ω	12Ω	570-455		
L22	2nd AM IF	12Ω	12Ω	570-455		

FUSES

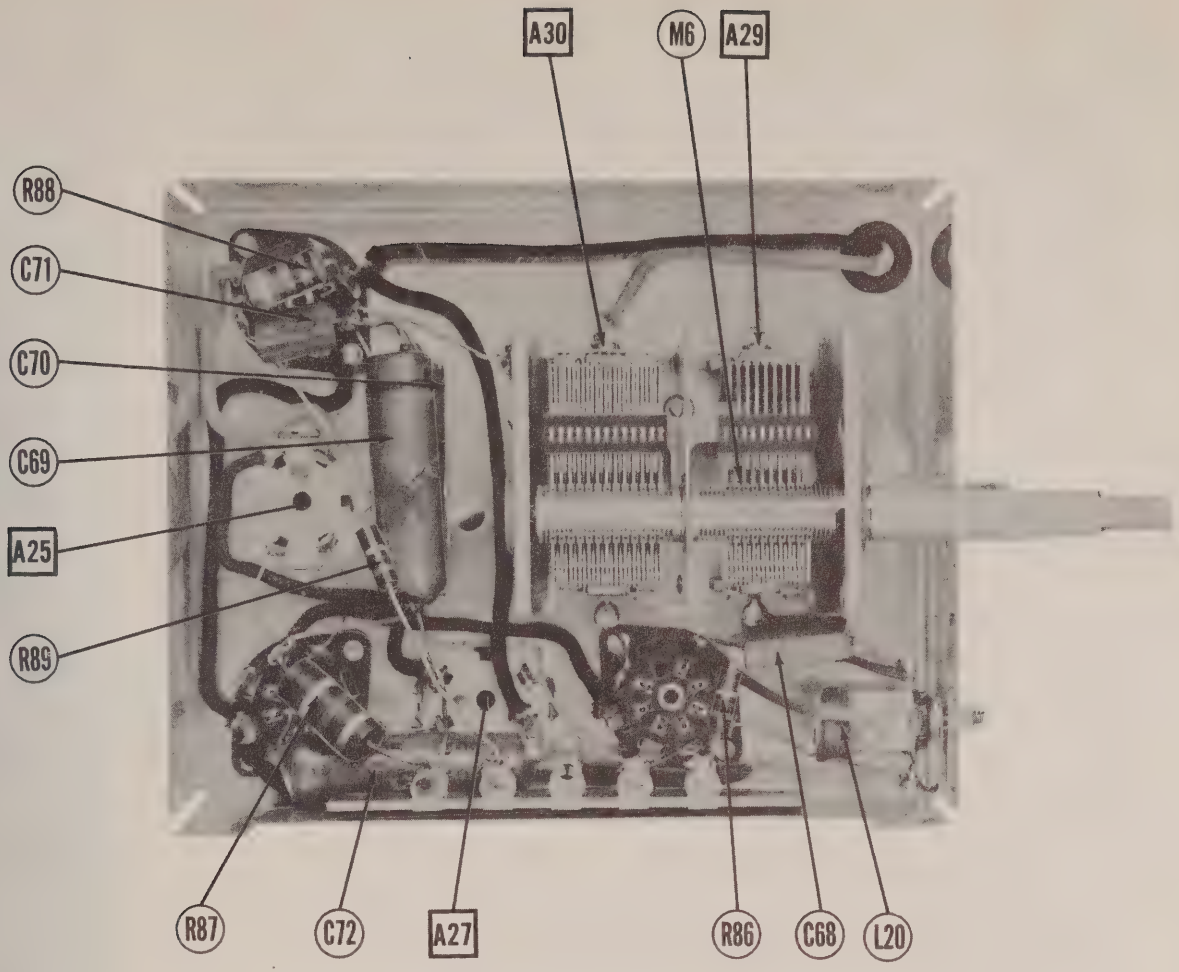
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			SETCHELL CARLSON PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	2 Amp.			312002	342001	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	Setchell Carlson PART No.	SYLVANIA PART No.	SELETRON PART No.	
M2	.018A			8Y1	

MISCELLANEOUS

ITEM No.	PART NAME	Setchell-Carlson PART No.	NOTES
M3	RF Tuner	TV-276	
M4	Crystal		(1N60)
M5	Switch		Function (Phono-Radio-TV)
M6	Tuning Cap	TV1-25A	29-437MMF
			32-194MMF
	Trimmer	152711	100-570MMF (Horiz. Drive)



SUB-CHASSIS H I

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug, (B1), until the picture synchronizes horizontally.

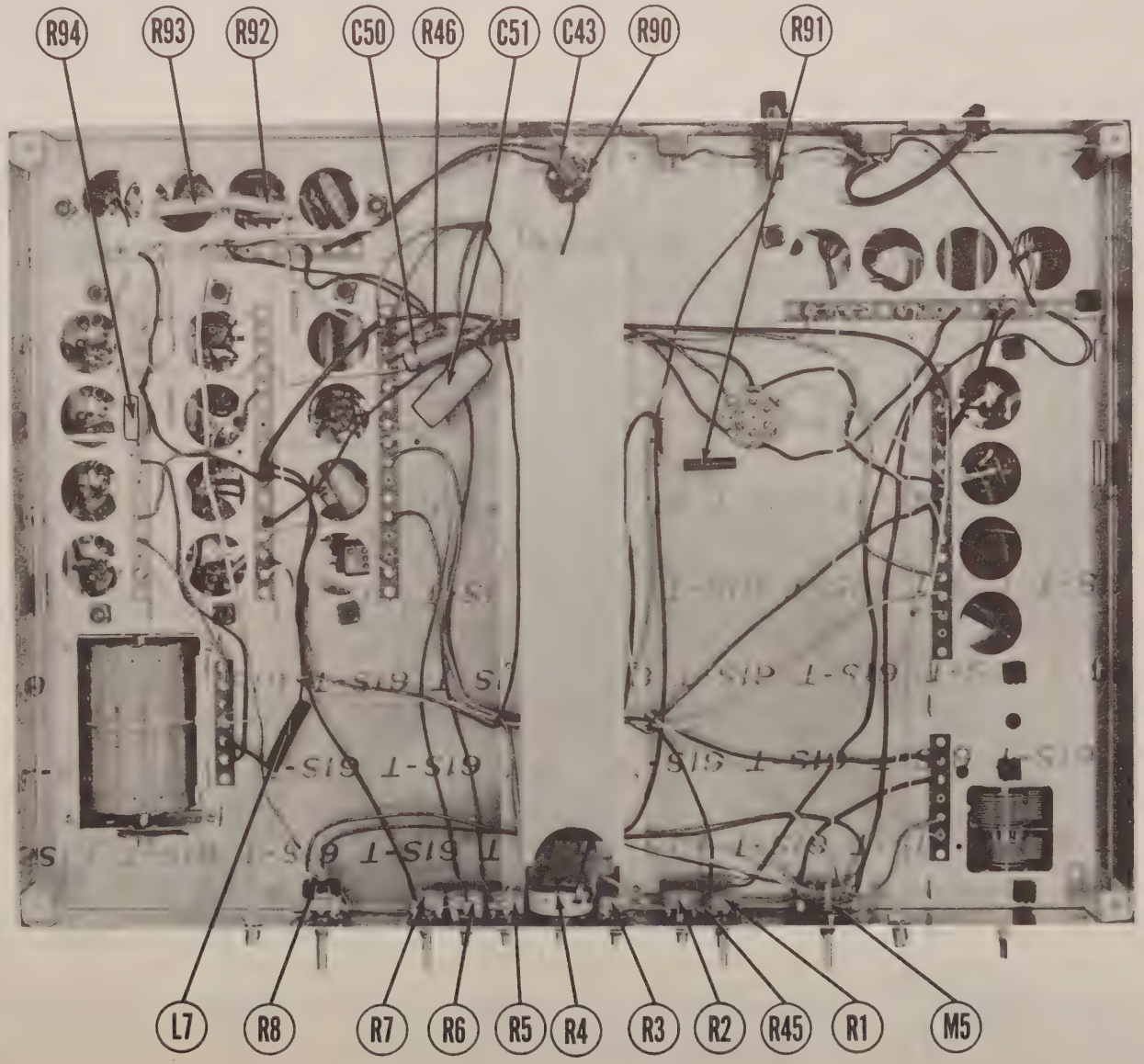
Turn the contrast control to minimum, and the brightness to maximum. Adjust the horizontal drive trimmer, (B2), clockwise as far as possible without bright vertical lines appearing in the picture.

Adjust the width, by sliding the metal sleeve around the neck of the picture into, or out of, the deflection yolk, until the picture is slightly wider than necessary to fill the mask horizontally.

DISASSEMBLY INSTRUCTIONS

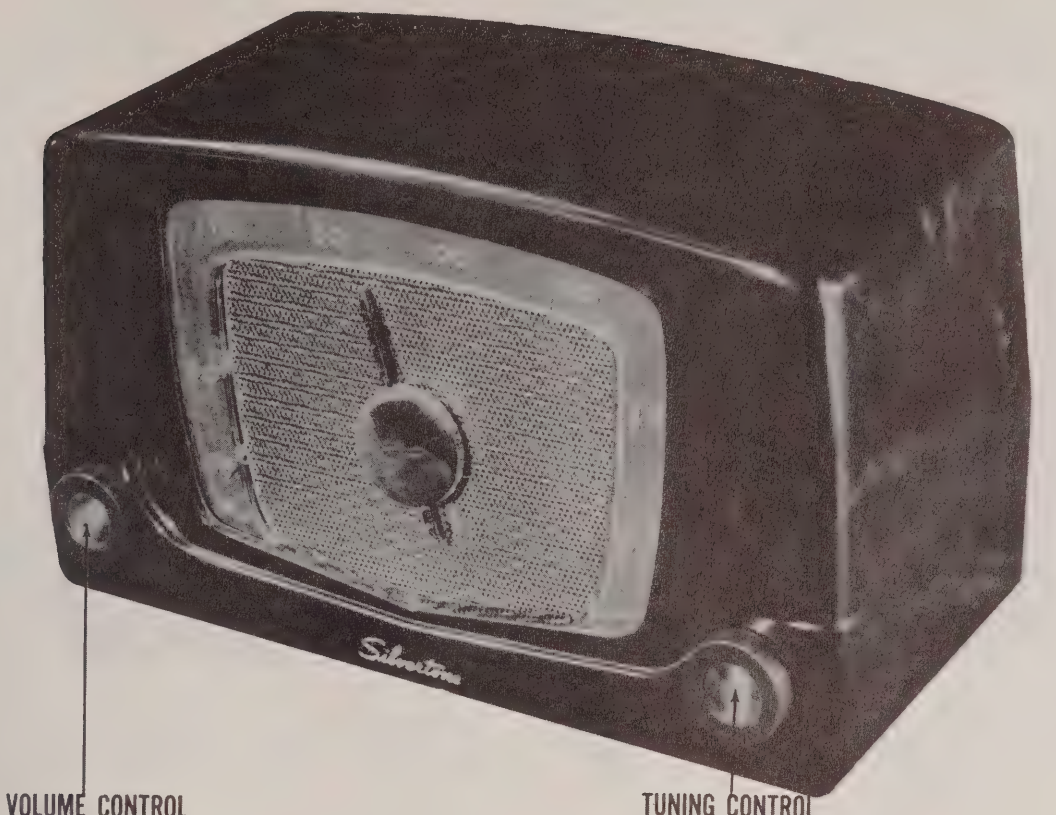
1. Remove six push-on type control knobs and two pointers.
2. Remove two wood screws from rear. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove antenna terminal strip.
5. Disconnect speaker.
6. Disconnect A. M. loop.
7. Remove two metal bolts from rear of chassis. Remove chassis.
8. Remove four 5/16" hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.



MAIN CHASSIS - BOTTOM VIEW

SILVERTONE
MODELS 5, 6 (Ch. 132.881)



SILVERTONE
MODELS 5, 6 (Ch. 132.881)

TRADE NAME	Silvertone, Models 5, 6 (Ch. 132.881)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Illinois
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50C5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05Mfd.	High side to stator on rear section of tuning gang. Low side to B-	455KC (400~Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	Tune for maximum output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7BK	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF	12AT6	12AT6	7BT	
V4	Power Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	20	150		PRS150/40-20-20		EDL42215		TVA-3448	Filter
B	40	150							Filter
C	20	150							Filter
C2	.0005	600						6TM-T5	Ant. Isolation *
C3	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	AVC Filter
C4	.05	200		P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C5	250	500		1468-00025	D6-251	5W5T25	GP2K-251	1FM-325	Diode RF Filter
C6	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C7A	.01			P688-01		PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
B	250		♦N24084	S1250	♦PC80	5W5T25	GP2K-251		AF Amp. Plate
C									Output Grid
C8	.0005	600						6TM-T5	Tone Comp. *
C9	.05	200		P288-05	DF-503	PTE4S5		2TM-S5	Tone Comp.
C10	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Output Plate
C11	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Line Filter
C12	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Line Isolation

* Not used in all models.
♦ Items C7A, C7B, C7C, R9A, R9B are combined on one unit.
When replacing items separately, C7B and C7C should total 250MMF.

CONTROLS

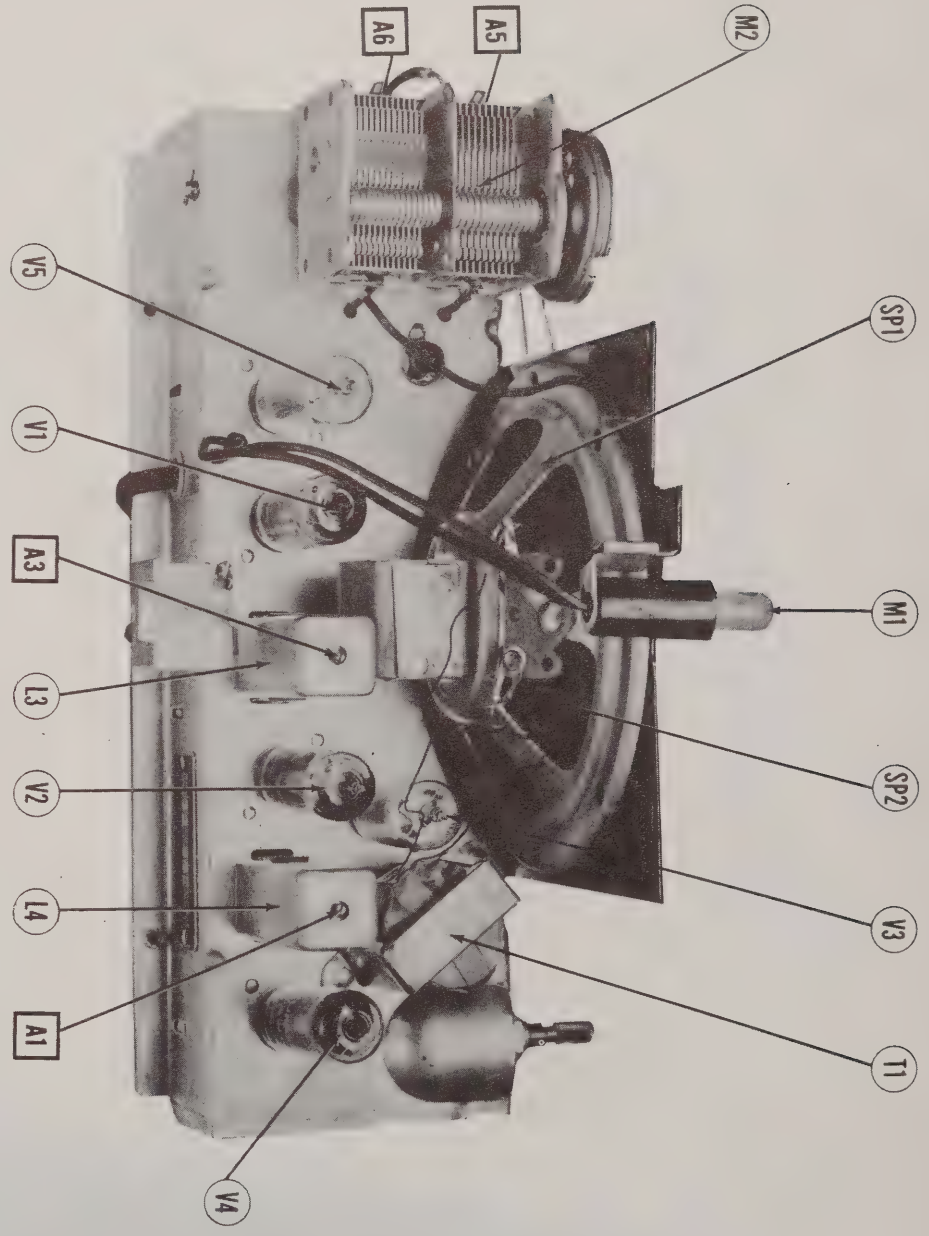
ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	1Meg	½	N-23468	Q13-137	AG-63-Z	BSK-70-S	Volume Control
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R1A for instructions
C	Switch		Not req.	76-1	SW-B	Not req.	Attach to R1A for instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SILVERTONE PART No.	IRC PART No.	
R2	22KΩ	½		BTS-22K	Osc. Grid
R3	1Meg	½		BTS-1Meg	AVC Network
R4	47Ω	½			IF Amp. Cathode
R5	2.2Meg	½		BTS-2.2Meg	AVC Network
R6	470Ω	½		BTS-470	Tone Compensation
R7	2200Ω	½		BTS-2200	Tone Compensation
R8	4.7Meg	½		BTS-4.7Meg	AF Amp. Grid
R9A	470KΩ	½	♦	BTS-470K	AF Amp. Plate
B	470KΩ	½		BTS-470K	Output Grid
R10	120Ω	½		BTS-120	Output Cathode
R11	1200Ω	1		BTA-1200	Filter
R12	120Ω	1		BTS-120	Filter
R13	15Ω	½			Surge Limiter
R14	150Ω	½		BTS-150	Dial Light Shunt
R15	330KΩ	½		BTS-330K	Isolation

♦ Items R9A, R9B, C7A, C7B and C7C are combined into one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2.5KΩ	3.7Ω	185Ω	.6Ω	N-23464-1	A-3332	A-3025	RO-2 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	PM	3.7Ω	N23467	ST105 Model P5-X	5A07	
	CONE DIA.	V. C. DIA.				
SP2	5"	9/16"				

R F COILS

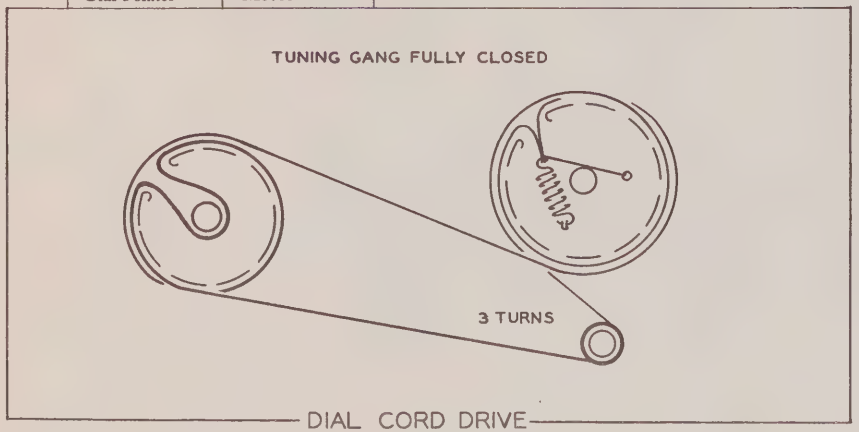
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	
L1	Loop Ant.	1.4Ω	.1Ω	N23884		
L2	Osc. Coil	.5Ω	7Ω	N24210-1		
L3	1st. IF	18Ω	18Ω	N21797-16		
L4	2nd. IF	18Ω	18Ω	N21797-16		

DIAL LIGHTS

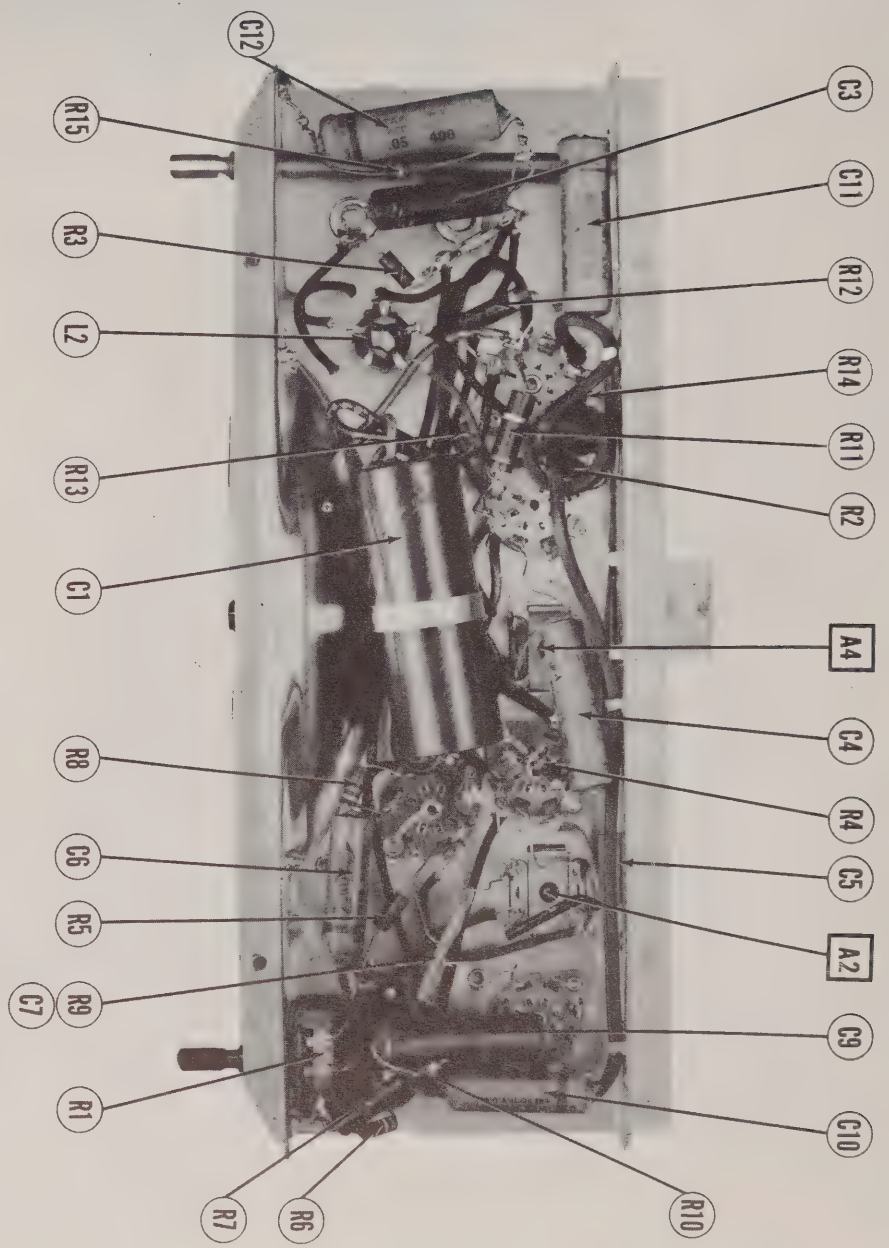
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					SILVERTONE PART No.		
M1	Bayonet	6-8	.15	Brown	N-19351		Type # 47

MISCELLANEOUS

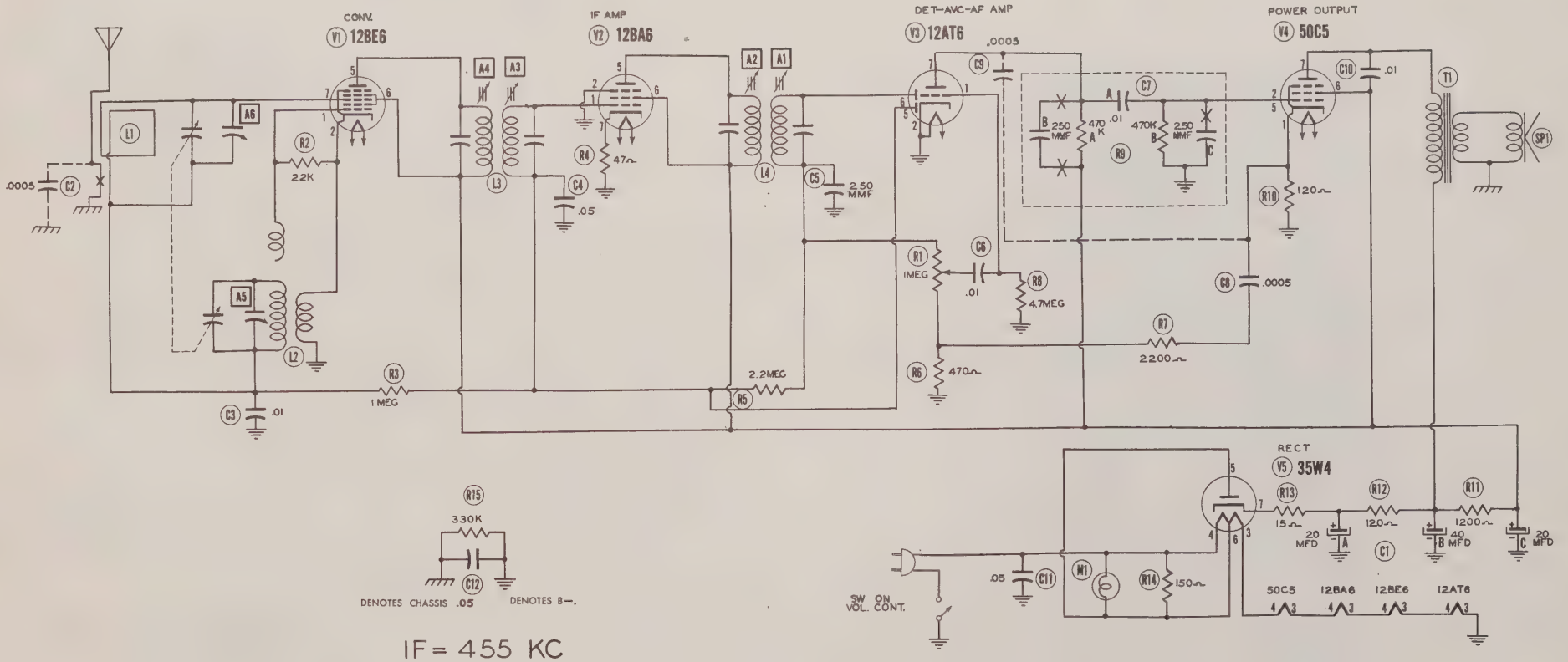
ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M2	2 Gang Var Cap.	N24209	(29-468MMF, 26-182MMF)
	Cabinet	N23877-1	Model 5
	Cabinet	N23877-2	Model 6
	Dial Crystal	N23880	
	Knob	N23878-1	Brown
	Knob	N23878-2	Ivory
	Dial Pointer	N23895	



CHASSIS—BOTTOM VIEW



SILVERTONE MODEL 5



IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	8-6.3VDC	0V	12VAC	24VAC	75VDC	75VDC	-.2VDC
V 2	12BA6	-.5VDC	0V	24VAC	36VAC	75VDC	75VDC	.6VDC
V 3	12AT6	-.5VDC	0V	0V	12VAC	-.5VDC	-.5VDC	33VDC
V 4	50C5	4.8VDC	0V	36VAC	86VAC	0V	80VDC	95VDC
V 5	35W4	105VDC	100VDC	86VAC	117VAC	105VAC	105VAC	110VDC

$ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.5Ω	12Ω	24Ω	†1.3KΩ	†1.3KΩ	4.2Meg
V 2	12BA6	3.2Meg	0Ω	24Ω	36Ω	†1.3KΩ	†1.3KΩ	47Ω
V 3	12AT6	4.7Meg	0Ω	0Ω	12Ω	3.2Meg	1Meg	†470KΩ
V 4	50C5	120Ω	470KΩ	36Ω	86Ω	470KΩ	†1.3KΩ	†320Ω
V 5	35W4	†15Ω	†135Ω	86Ω	121Ω	103Ω	103Ω	200KΩ

† MEASURED FROM PIN 7 OF V5

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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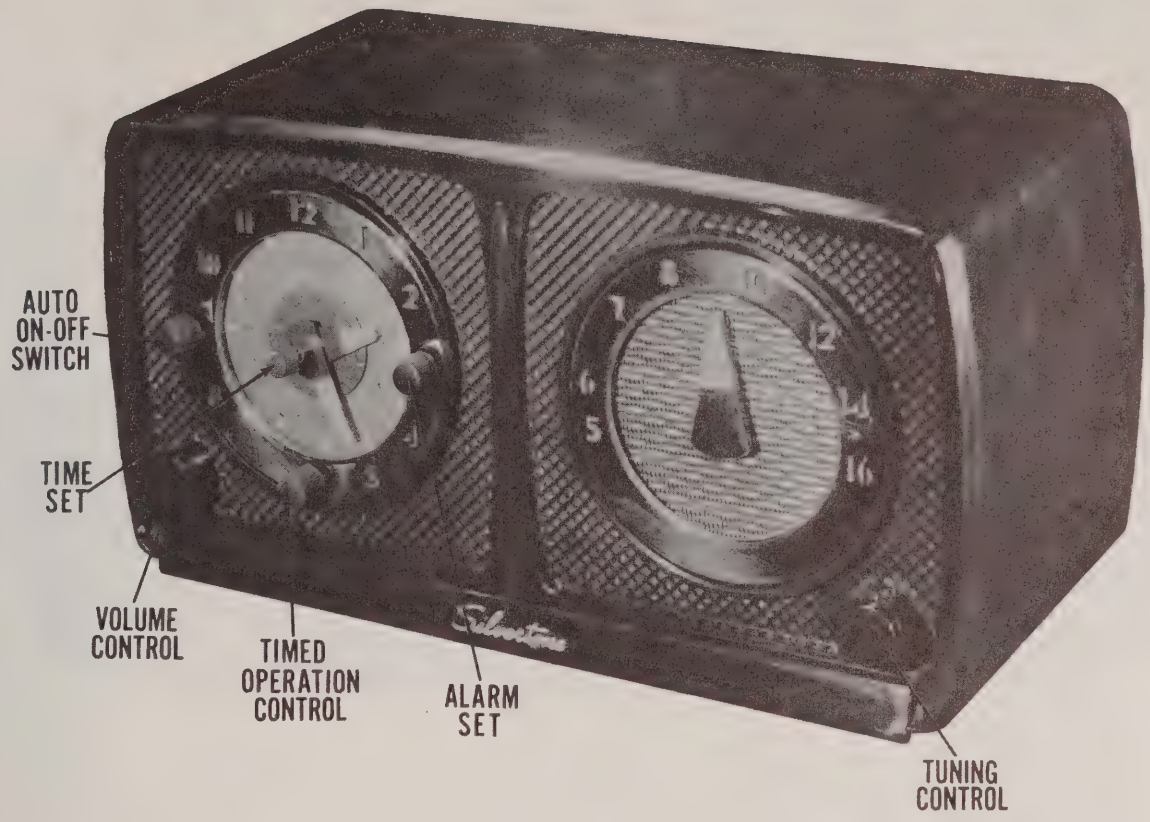
144-10

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE
MODELS 10, 11, (Ch. 132.896)



SILVERTONE
MODELS 10, 11, (Ch. 132.896)

SILVERTONE MODEL 10

TRADE NAME	Silvertone, Models 10, 11 (Ch. 132.896)
MANUFACTURER	Sears Roebuck & Co., 925 S. Homan Street, Chicago, Illinois
TYPE SET	AC Operated Superheterodyne Receiver with Electric Clock
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AV6 or 12AT6 Det.-AVC-AF, 50C5 Power Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC — RATING .28 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05Mfd.	High side to stator on front section of tuning gang. Low side to chassis.	455KC (400~Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1620KC	"	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	Tune for max. output.	"	A3	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3A	Detector-AVC-AF Amplifier	12AV6	12AV6	7BT	
B	Detector-AVC-AF Amplifier	12AT6	12AT6	7BT	
V4	Power Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	150	N24025	PRS150/80-40-20		EDL8415C		TVA-3455	Filter
B	30	150							Filter
C	20	25							Output Cathode
C2	.05	200		P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C3	3000			SI3000	D6-302	1W5D3	GP2-333-302	5GA-D33	IF Amp. Cathode
C4	47			SI47	D6-470	5W5Q5	GP1K-470	5GA-Q47	Audio Coupling
C5A	150			SI150	‡PC-51	5W5T15	GP2K-151	‡100C1	Diode RF Filter
B	150			SI150		5W5T15	GP2K-151		Diode RF Filter
C6	5000			BPD-005	DD-502	1D5D5	811-005	5HK-D5	Audio Coupling
C7A	.01			P688-01		PTE6S1	GP2-333-103	6TM-S1	Audio Coupling
B	250				♦PC-80				AF Amp. Plate
C									Output Grid
C8	.02	400		P488-02	DF-203	PTE4S2		4TM-S2	Output Plate
C9	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Line Filter
C10	.05	400		P488-05	DF-503	PTE4S5		4TM-S5	Line Isolation

‡ Items C5A, C5B, R7 are combined into one unit.
♦ Items C7A, C7B, C7C, R9A, R9B are combined into one unit. When replacing separately, C7B and C7C should total 250 MMF.

CONTROLS

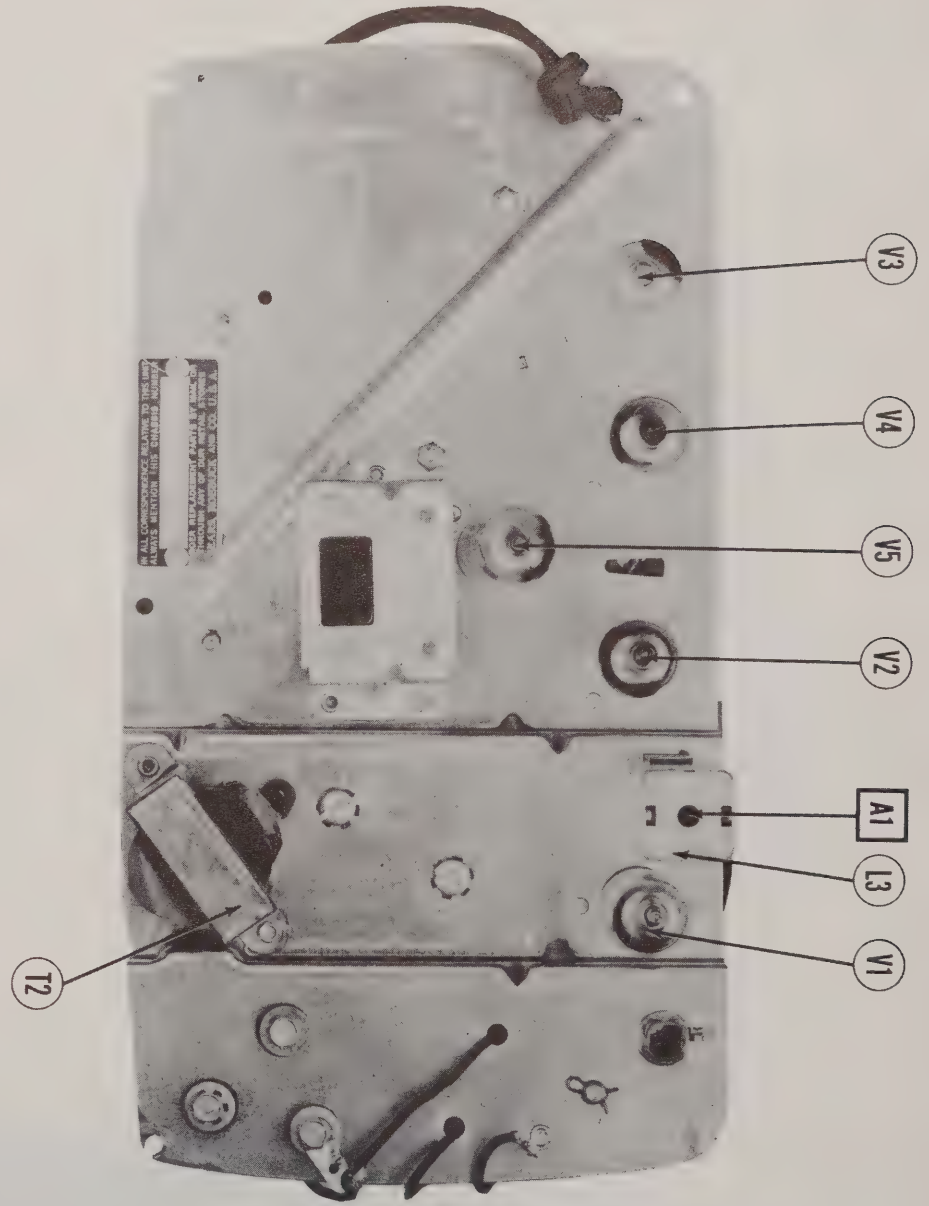
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	N24026	Q13-137	AG-63-Z	BSK-70	Volume Control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Attach to R1A Per Instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½		BTS-22K	Oscillator Grid
R3	47Ω	½			IF Cathode
R4	6800Ω	½		BTS-6800	IF Plate
R5	2.2Meg	½		BTS-2.2Meg	AVC Network
R6	100KΩ	½		BTS-100K	Diode Load
R7	47KΩ	½	N24103 ‡	BTS-47K	Diode Filter
R8	6.8Meg	½		BTS-6.8Meg	AF Amp. Grid
R9A	500KΩ	½	N24084 ♦	BTS-470K	AF Amp. Plate
B	500KΩ	½		BTS-470K	Output Grid
R10	120Ω	½		BTS-120	Output Cathode
R11	1200Ω	1		BW-1-1200	Filter
R12	15Ω	½			Surge Limiter
R13	330KΩ	½		BTS-330K	Isolation

‡ Items R7, C5A and C5B are combined into one unit.
♦ Items R9A, R9B, C7A, C7B and C7C are combined into one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SILVERTONE	STANCOR	MERIT	CHICAGO	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
T1	2.2KΩ	3.6Ω	180Ω	.6Ω	N24021-1	A-3332	A-3025	RO-2 ①	① Drill one new mounting hole.

SPEAKER

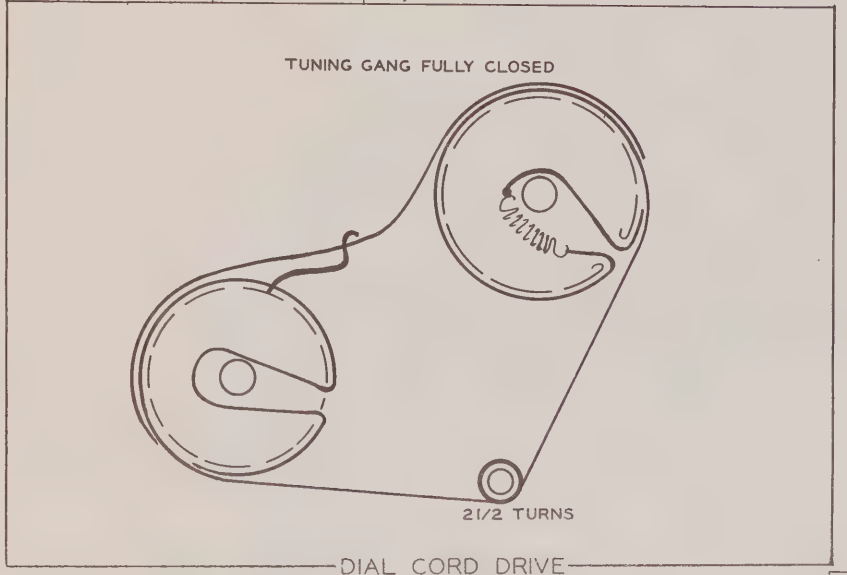
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD RES.	V.C. IMP.	N24022	ST113 Mod. P-4X	4A07	
	PM	3.6Ω				
	CONE DIA.	V. C. DIA.				
SP2	4"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.
L1	Loop Ant.	3.6Ω	.3Ω	N24019	
L2	Osc. Coil	.8Ω	7Ω	N24020	
L3	IF Coil	26Ω	26Ω	N21797-8	

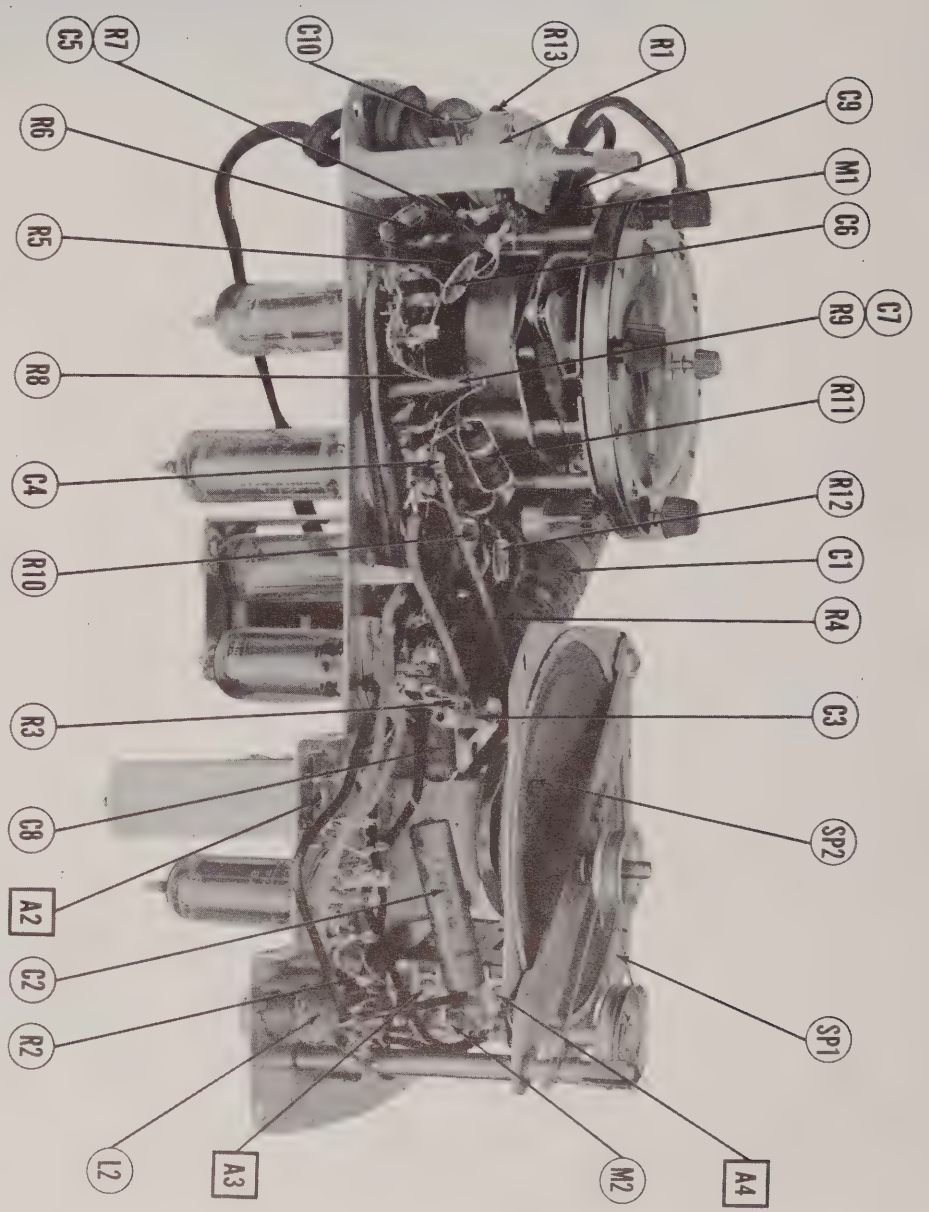
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	Switch		On-Off
M2	2 Gang Var. Cap.	N24024	(20-388MMF, 22-157MMF)
	Dial Scale	N23999	
	Dial Pointer	N24002	
	Cabinet	N23994-1	Brown (Model 10)
	Cabinet	N23994-2	Ivory (Model 11)
	Knob	N23996-1	Brown
	Knob	N23996-2	Ivory

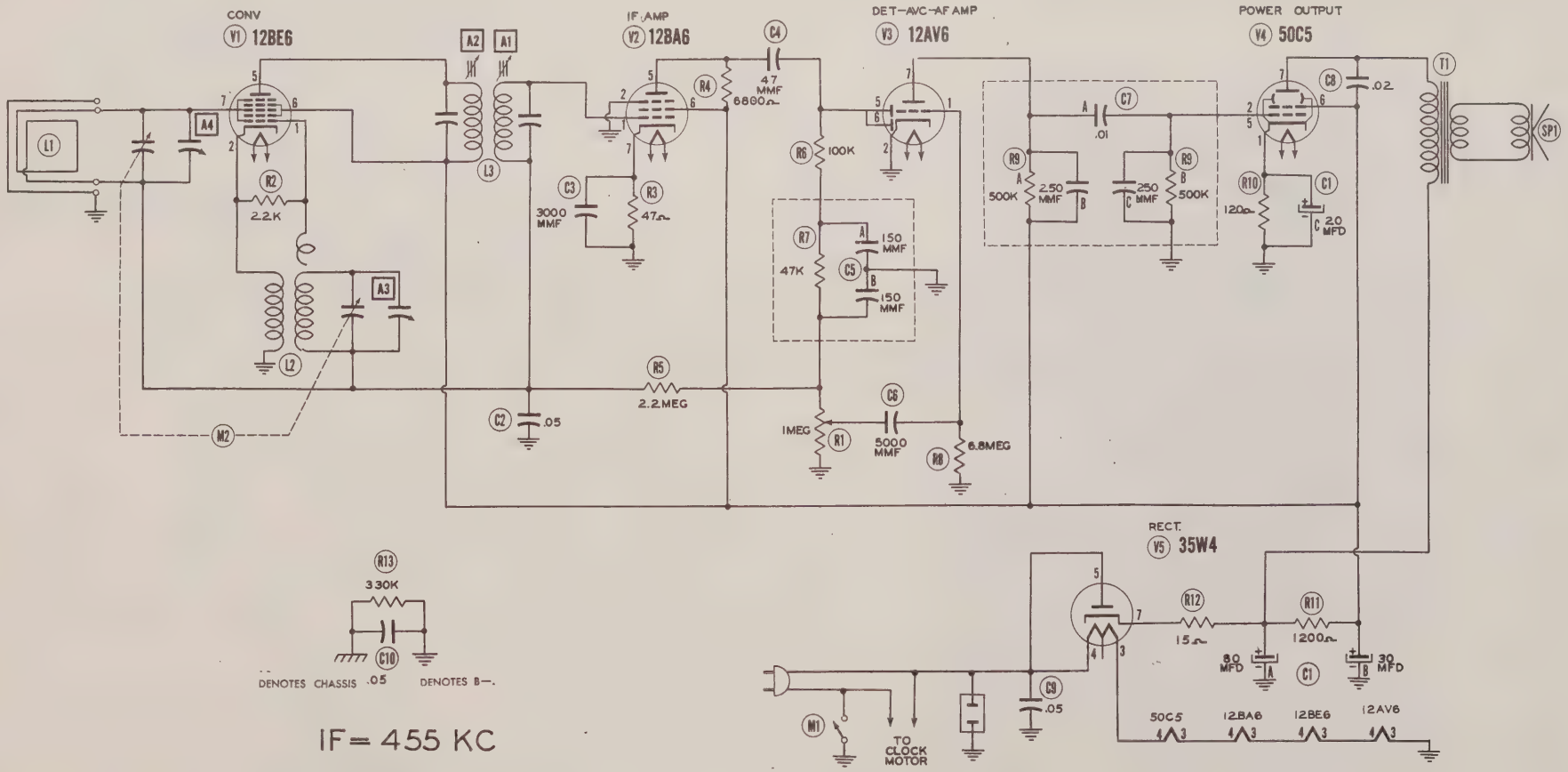


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



SILVERTONE MODEL 10



DENOTES CHASSIS .05 DENOTES B—.

IF = 455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	§-7.9VDC	0V	12VAC	24VAC	90VDC	90VDC	-.2VDC
V 2	12BA6	-.2VDC	0V	24VAC	36VAC	59VDC	90VDC	.5VDC
V 3	12AV6	-.6VDC	0V	0V	12VAC	-.6VDC	-.6VDC	41VDC
V 4	50C5	6.2VDC	0V	36VAC	86VAC	0V	90VDC	115VDC
V 5	35W4	0V	120VDC	86VAC	117VAC	117VAC	105VAC	120VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.8Ω	12Ω	24Ω	†1.2KΩ	†1.2KΩ	3.2Meg
V 2	12BA6	3.2Meg	0Ω	24Ω	36Ω	†8KΩ	†1.2KΩ	47Ω
V 3	12AV6	6.8Meg	0Ω	0Ω	12Ω	1.1Meg	1.1Meg	†500KΩ
V 4	50C5	120Ω	500KΩ	36Ω	86Ω	500KΩ	†1.2KΩ	†195Ω
V 5	35W4	0Ω	80KΩ	86Ω	121Ω	121Ω	103Ω	80KΩ

† MEASURED FROM PIN 7 OF V5.

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

SILVERTONE MODEL
MODEL 165-16 (Ch. 100.120)

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MODEL 165-16 (Ch. 100.120)

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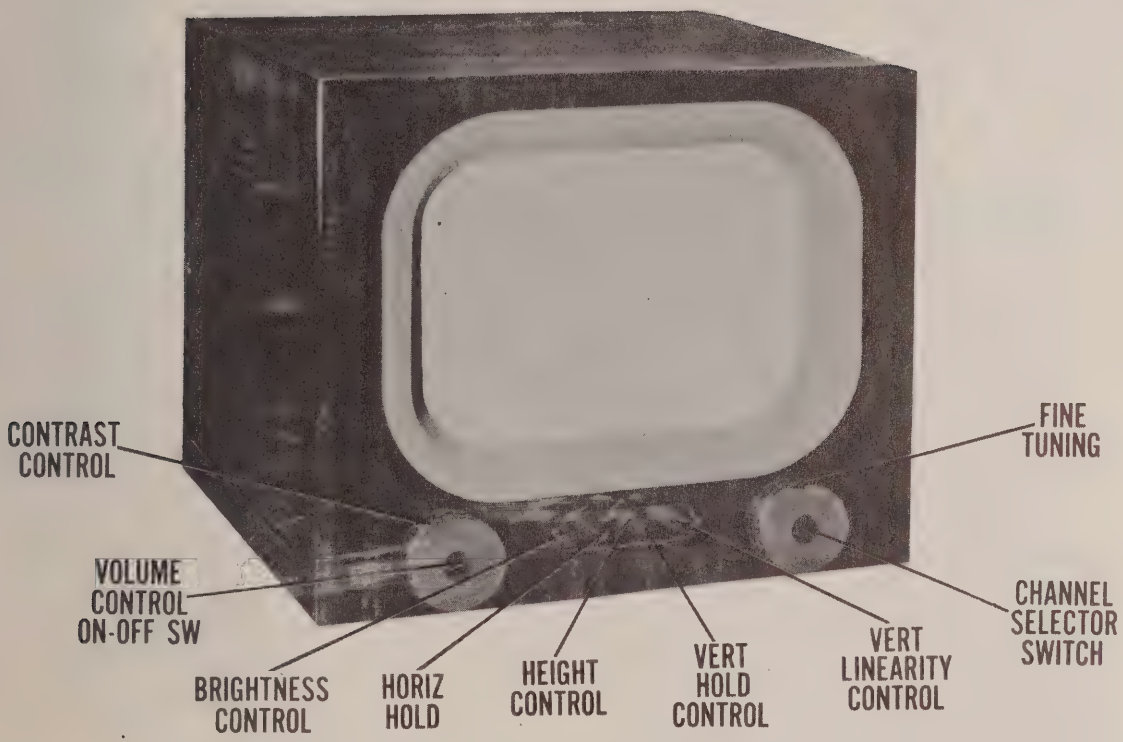
DATE 9-51 SET 144 FOLDER 12

SILVERTONE MODEL
MODEL 165-16 (Ch. 100.120)



SILVERTONE MODEL
MODEL 165-16 (Ch. 100.120)

SILVERTONE, MODEL 165-16

TRADE NAME	Silvertone, Model 165-16
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Street, Chicago, Illinois
TYPE SET	Television Receiver
TUBES	Twenty-six
POWER SUPPLY	110-120 Volts AC-60Cycle
RATING	2.1Amp. @ 117 Volts AC
TUNING RANGE—CHANNELS	2 thru 13

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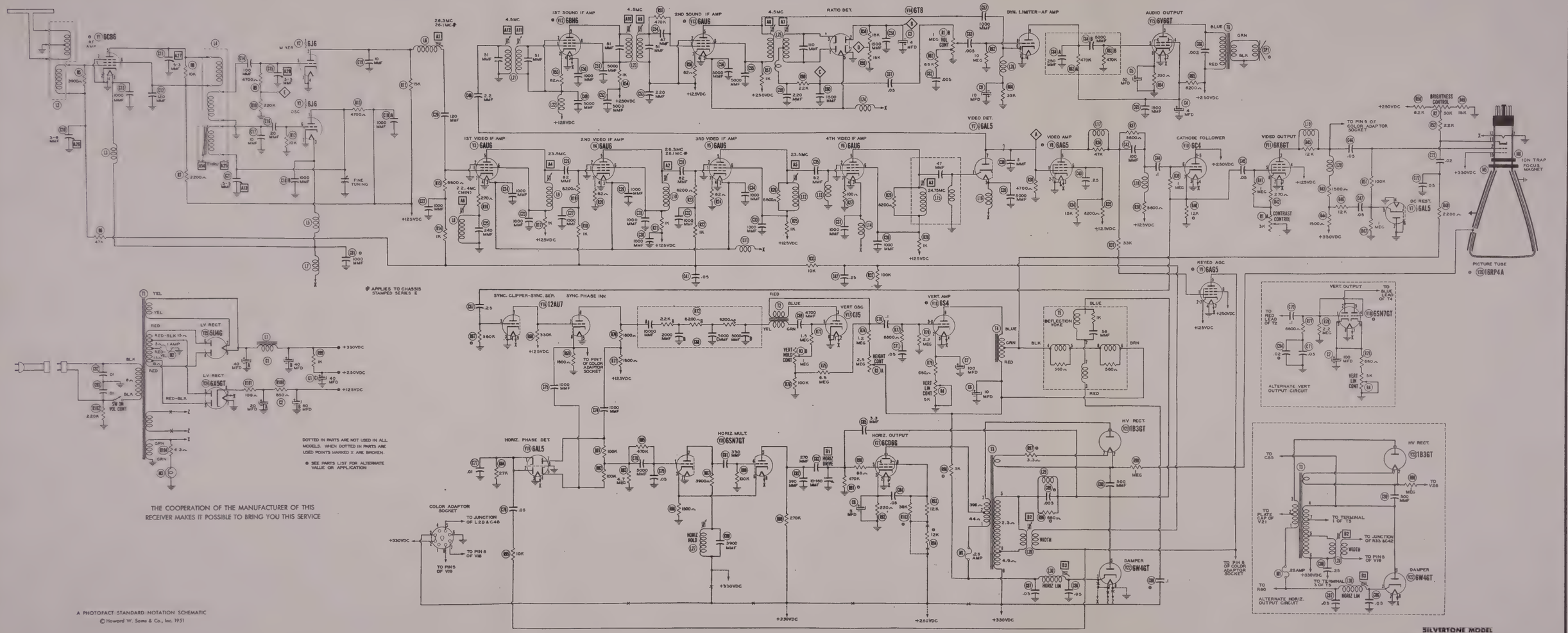
SILVERTONE MODEL
MODEL 165-16 (Ch. 100.120)
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
APPLIES TO CHASSIS STAMPED SERIES E
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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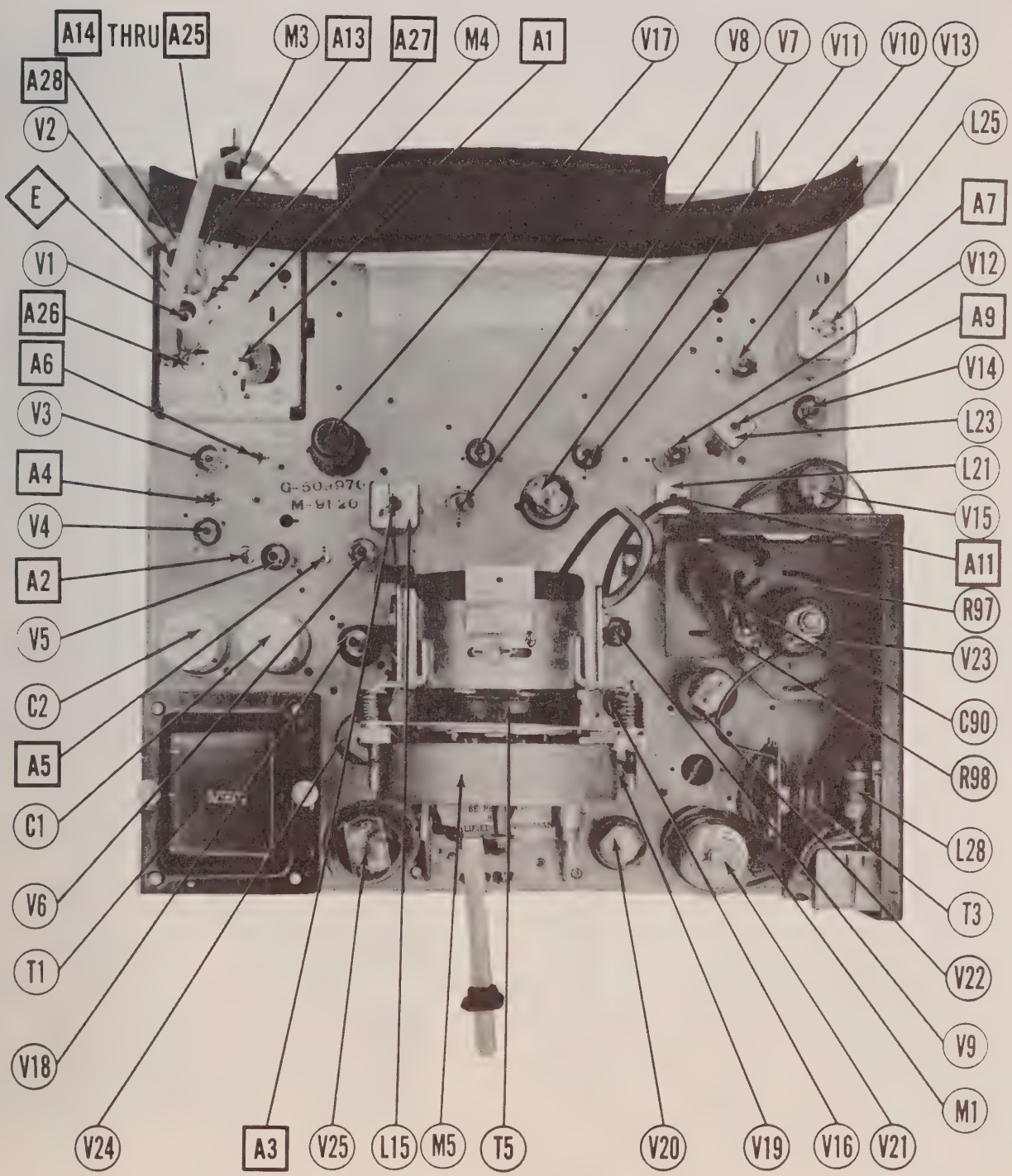
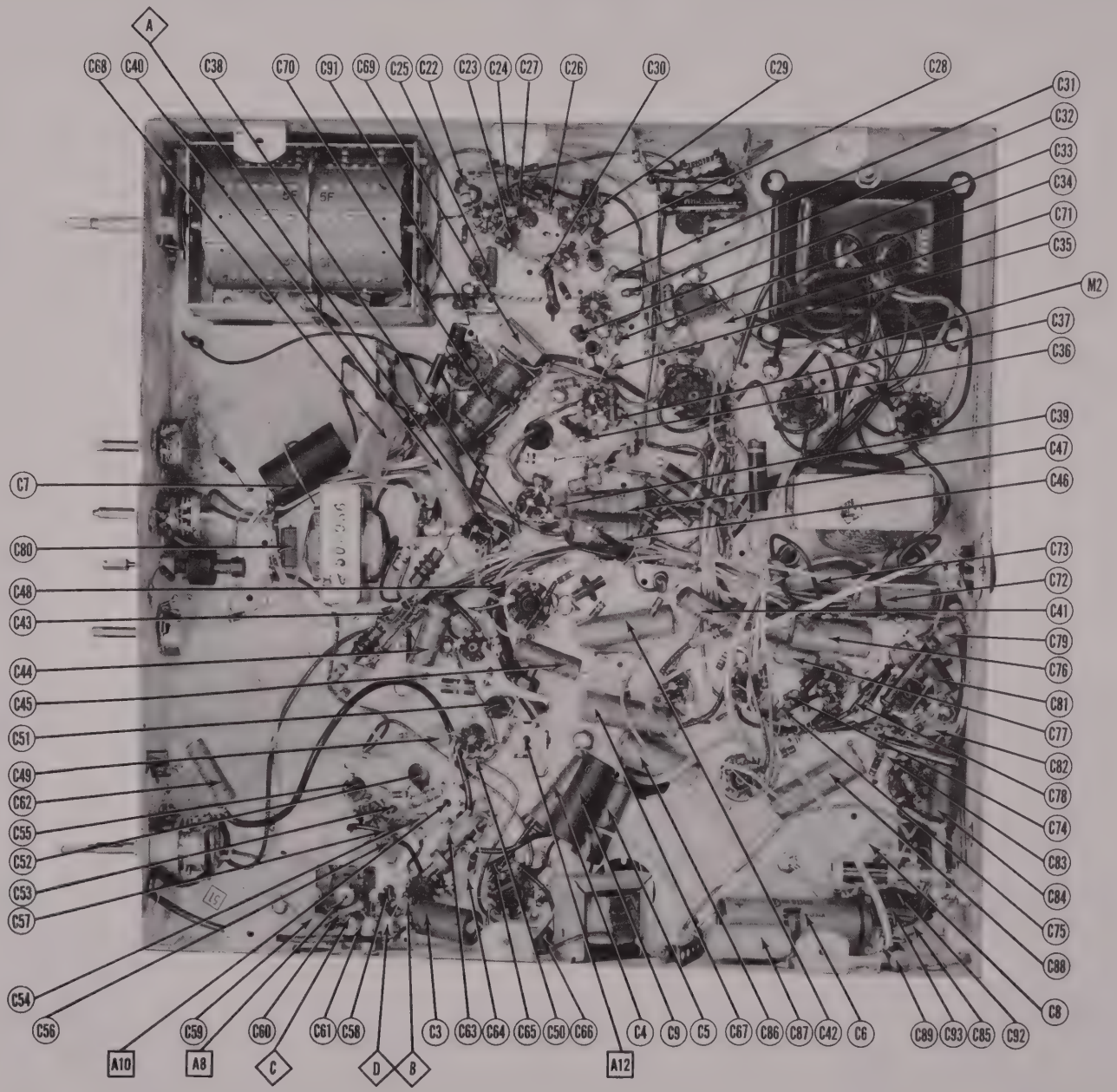
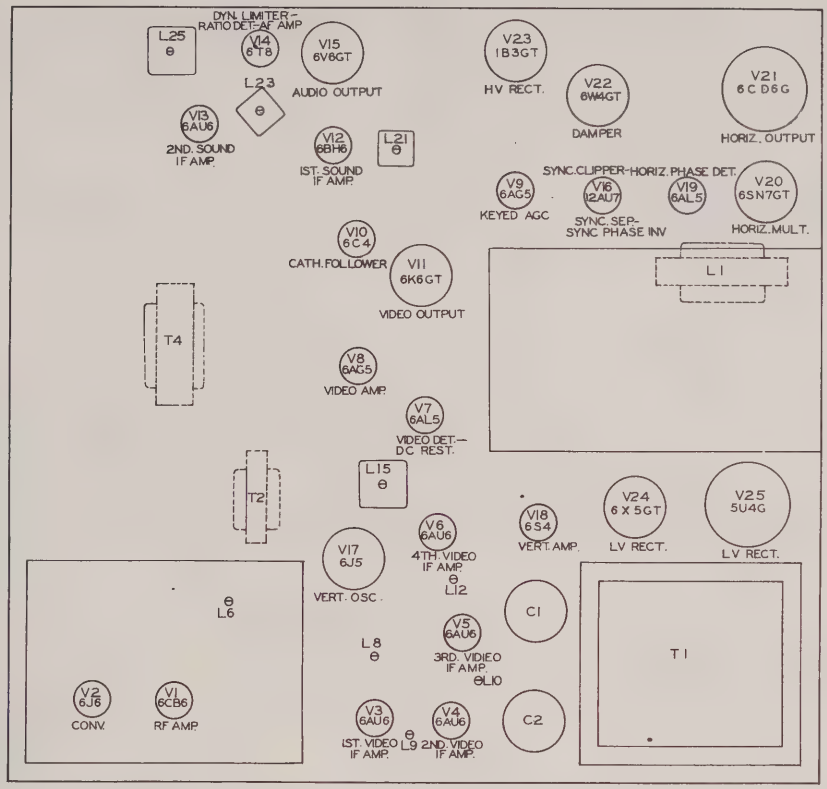


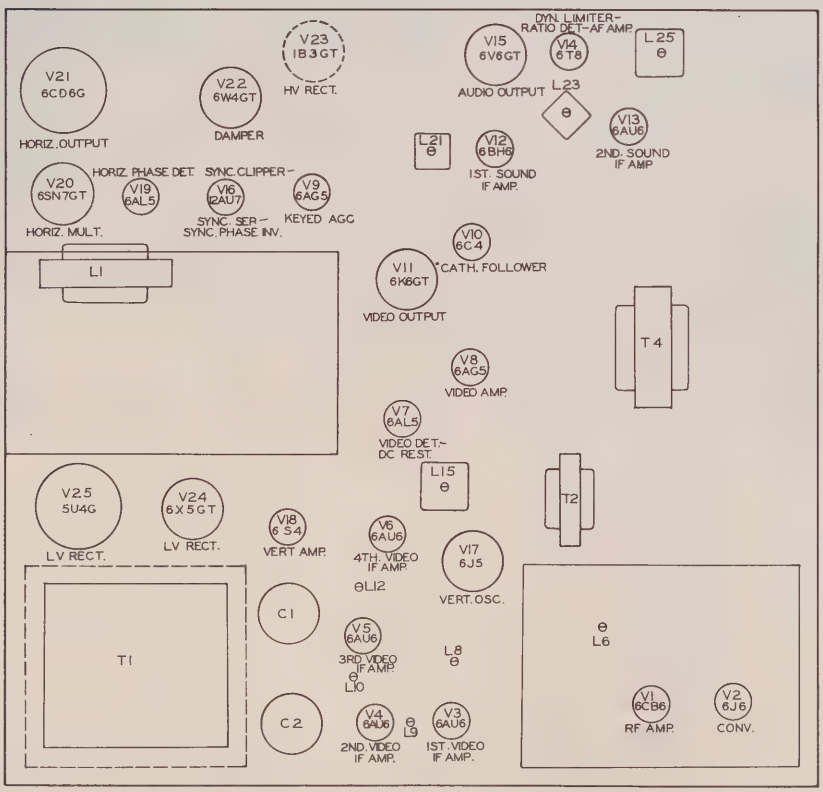
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2) and replace it with a 6J6 which has Pin 1 removed, this will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the junction of R33 and C41, connect the positive lead to chassis.
On receivers which have an "E" in the series designation stamped on the chassis rear apron, A1 and A2 are tuned to 26.1MC; on all other chassis, A1 and A2 are tuned to 26.3MC.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	26.3MC or 26.1MC (See Note Above)	Any	DC probe to Point (A). Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	24.75MC	"	"	A3	"
3.	"	"	23.5MC	"	"	A4, A5	"
4.	"	"	22.4MC	"	"	A6	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	25MC (10MC SWP)	22.25MC 26.75MC	Any	Vert. amp. thru 10KΩ to Point (A). Low side to chassis.		Check for response curve similar to figure 1. If necessary retouch A1 thru A5 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.01MFD	High side to Pin 1 (cathode) of 6AL5, (V7). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to Point (B). Common to chassis.	A7, A8, A9, A10, A11, A12	Adjust for maximum deflection. Notice that A7 has a very broad peak.
7.	"	"	"	"	DC probe to Point (C). Common to Point (D).	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Continue with step 9.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.01MFD	High side to Pin 1 (grid) of 6AU6, (V12). Low side to chassis.	4.5MC (450KC SWP)	4.5MC	Any	Vert. amp. thru 10KΩ to Point (B). Low side to chassis.	A8, A9, A10	Disconnect stabilizer capacitor C3. Adjust for maximum amplitude and symmetry as per figure 2.
7.	"	High side to Pin 1, (cathode) of 6AL5, (V7). Low side to chassis.	"	"	"	"	A11, A12	"
8.	"	"	"	"	"	Vert. amp. to Point (C). Low side to chassis.	A7	Reconnect capacitor C3. Adjust A7 so 4.5MC occurs at center of crossover lines as per figure 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off-frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step, using A13. It should be noted that this is an all-channel oscillator circuit adjustment and should not be adjusted for any individual channel. If adjustment of A13 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off-frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is tuned to each channel. Mid-position on the fine tuning control is the point where the "tooth" on the cam points straight down.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. amp. thru 10KΩ to Point (A). Low side to chassis.	A14	Adjust to place sound marker as shown in figure 4. The video marker should be at 50%.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A15	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A16	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A17	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A18	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A19	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A20	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A21	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A22	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A23	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A24	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A25	

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

Leave the 3 volt bias connected as during video IF alignment.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to Point (E). Low side to chassis	A26, A27, A28	Adjust for response curve similar to figure 5. with markers above 90%.
10.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to figure 5. If markers fall below 70% on any channel, make slight adjustment of A26, A27 and A28 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

INTERCARRIER BUZZ REDUCTION

After alignment is completed, turn the set on and tune in a strong TV station. Retouch the ratio detector transformer secondary adjustment, (A7), for MINIMUM intercarrier buzz.

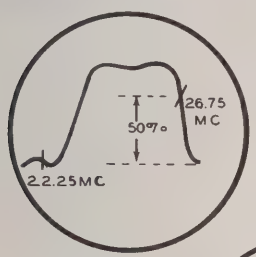


FIG. 1

FIG. 2

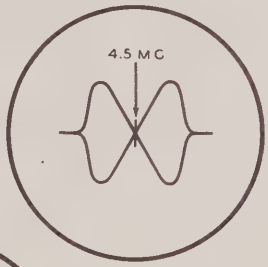


FIG. 3

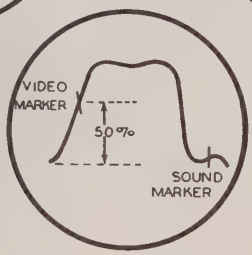


FIG. 4

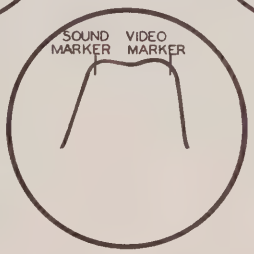


FIG. 5

SILVERTONE MODEL
MODEL 165-16 (Ch. 100.120)

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	-.3VDC	0V	6.3VAC	0V	95VDC	95VDC	0V		
V 2	6J6	90VDC	80VDC	6.3VAC	0V	-1.4VDC	§-5.5VDC	0V		
V 3	6AU6	-.2VDC	0V	6.3VAC	0V	120VDC	120VDC	1.3VDC		
V 4	6AU6	-.2VDC	0V	6.3VAC	0V	120VDC	120VDC	.7VDC		
V 5	6AU6	-.2VDC	0V	6.3VAC	0V	120VDC	120VDC	.7VDC		
V 6	6AU6	0V	0V	6.3VAC	0V	120VDC	120VDC	1VDC		
V 7	6AL5	0V	0V	6.2VAC	0V	.6VDC	0V	-.4VDC		
V 8	6AG5	-.4VDC	0V	6.3VAC	0V	70VDC	75VDC	0V		
V 9	6AG5	70VDC	125VDC	6.3VAC	0V	-.2VDC	250VDC	125VDC		
V 10	6C4	250VDC	0V	0V	6.3VAC	250VDC	§.63VDC	110VDC		
V 11	6K6GT	0V	0V	280VDC	125VDC	10VDC	0V	6.3VAC	42VDC	
V 12	6BH6	#.1VDC	#.1VDC	6.3VAC	0V	#118VDC	#118VDC	#1VDC		
V 13	6AU6	#-.5VDC	#0V	6VAC	0V	#118VDC	#118VDC	#0V		
V 14	6T8	-.3VDC	-.9VDC	-.3VDC	0V	6VAC	-.5VDC	0V	-.7VDC	60VDC
V 15	6V6GT	0V	6.3VAC	235VDC	225VDC	0V	250VDC	0V	12VDC	
V 16	12AU7	18VDC	-5VDC	0V	0V	0V	90VDC	18VDC	18VDC	6.3VAC
V 17	6J5	0V	6.3VAC	60VDC 150VDC	0V	-3.5VDC	0V	0V	0V	
V 18	6S4	0V	12VDC 35VDC	0V	6.3VAC	0V	0V	0V	0V	380VDC
V 19	6AL5	0V	0V	0V	6.3VAC	7.6VDC	0V	-4.7VDC		
V 20	6SN7GT	.6VDC	300VDC	13VDC	-1.2VDC	118VDC	13VDC	6.3VAC	0V	
V 21	6CD6G	0V	0V	25VDC	0V	0V	0V	6.3VAC	155VDC	*
V 22	6W4GT	0V	0V	470VDC	0V	320VDC	320VDC	470VDC	470VDC	
V 23	1B3GT	* DO NOT MEASURE								
V 24	6X5GT	0V	6.3VAC	190VAC	0V	190VAC	0V	0V	190VDC	
V 25	5U4G	0V	350VDC	0V	325VAC	6.3VAC	325VAC	0V	350VDC	
V 26	16RP4A	0V	.5VDC	PIN 10 330VDC	PIN 11 33VDC	PIN 12 6.3VAC				

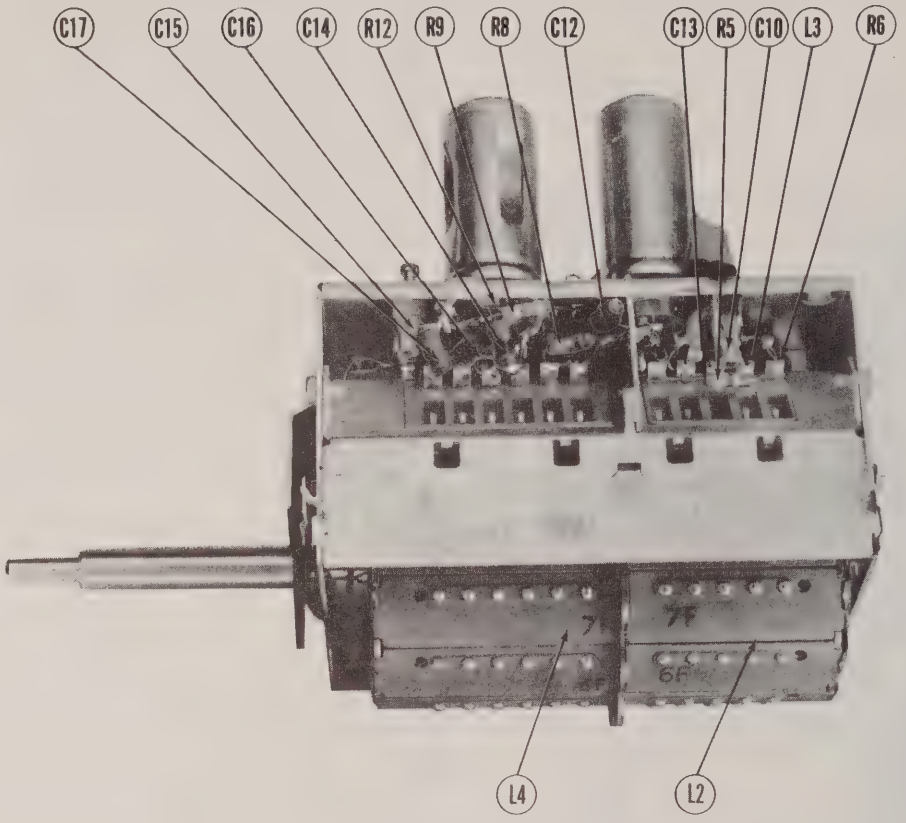
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
§ TAKEN WITH VACUUM TUBE VOLTMETER
# MEASURED FROM 125V POINT

RESISTANCE READINGS

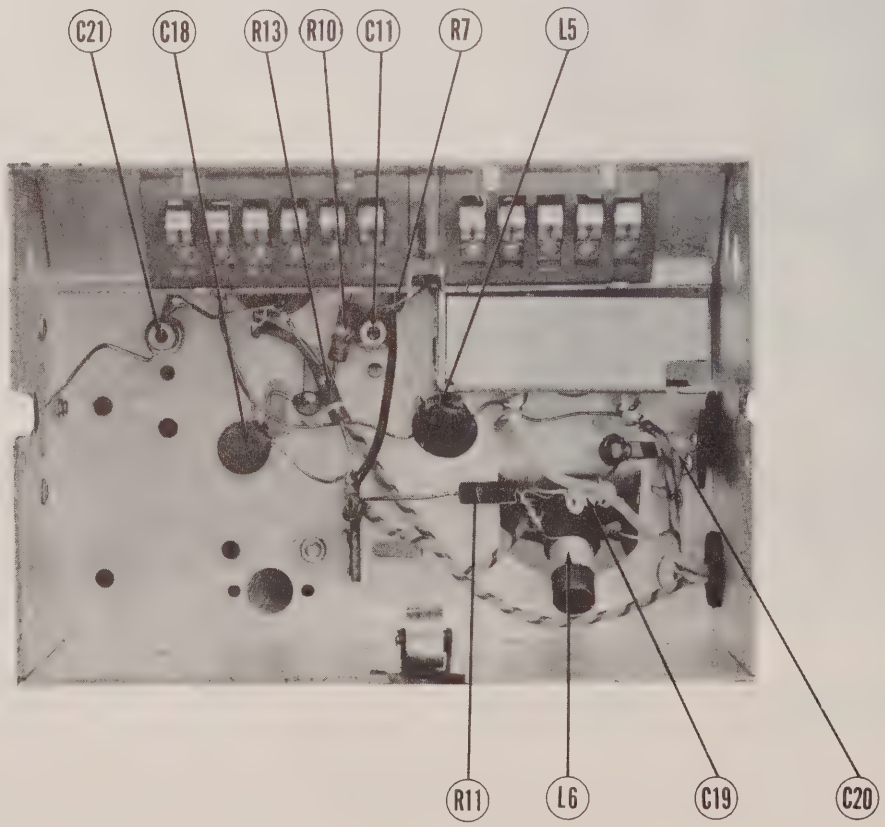
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	160KΩ	0Ω	.1Ω	0Ω	†3.3KΩ	†3.3KΩ	0Ω		
V 2	6J6	†5.6KΩ	†16KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AU6	120KΩ	0Ω	.1Ω	0Ω	†2KΩ	†2KΩ	270Ω		
V 4	6AU6	120KΩ	0Ω	.1Ω	0Ω	†2KΩ	†2KΩ	82Ω		
V 5	6AU6	120KΩ	0Ω	.1Ω	0Ω	†2KΩ	†2KΩ	82Ω		
V 6	6AU6	2.3Ω	0Ω	.1Ω	0Ω	†2KΩ	†2KΩ	100Ω		
V 7	6AL5	2.5Ω	0Ω	.5Ω	0Ω	1Meg	0Ω	5KΩ		
V 8	6AG5	5KΩ	0Ω	.1Ω	0Ω	†12KΩ	†9.5KΩ	0Ω		
V 9	6AG5	†50KΩ	†900Ω	.1Ω	0Ω	110KΩ	¶1.1KΩ	†900Ω		
V 10	6C4	¶1.1KΩ	Inf.	0Ω	.1Ω	¶1.1KΩ	1Meg	12KΩ		
V 11	6K6GT	Inf.	0Ω	¶3.2KΩ	†1KΩ	1Meg	Inf.	.1Ω	3.2KΩ	
V 12	6BH6	†900Ω	†1000Ω	.1Ω	0Ω	¶2.2KΩ	¶2.2KΩ	†900Ω		
V 13	6AU6	†480KΩ	†900Ω	.5Ω	0Ω	¶2.2KΩ	¶2.2KΩ	†1KΩ		
V 14	6T8	Inf.	35KΩ	Inf.	0Ω	.5Ω	33KΩ	0Ω	10Meg	¶500KΩ
V 15	6V6GT	Inf.	.1Ω	¶1.7KΩ	¶10KΩ	470KΩ	¶11KΩ	0Ω	330Ω	
V 16	12AU7	†330KΩ	600KΩ	0Ω	0Ω	0Ω	†4.8KΩ	†330KΩ	1.8KΩ	.1Ω
V 17	6J5	0Ω	.1Ω	▲3.2Meg 1.2Meg	Inf.	1.8Meg	Inf.	0Ω	0Ω	
V 18	6S4	Inf.	5.5KΩ 700Ω	2.2Meg	.1Ω	0Ω	2.2Meg	Inf.	Inf.	▲4.2KΩ
V 19	6AL5	27KΩ	27KΩ	0Ω	.1Ω	4.7Meg	0Ω	4.7Meg		
V 20	6SN7GT	5Meg	¶4KΩ	1.5KΩ	100KΩ	¶270KΩ	1.5KΩ	0Ω	.1Ω	
V 21	6CD6G	Inf.	0Ω	230Ω	Inf.	470KΩ	470KΩ	.1Ω	¶24KΩ	▲55Ω
V 22	6W4GT	Inf.	Inf.	800KΩ	Inf.	¶80Ω	¶100Ω	800KΩ	800KΩ	
V 23	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	▲420Ω
V 24	6X5GT	Inf.	.1Ω	15Ω	Inf.	15Ω	Inf.	0Ω	25KΩ	
V 25	5U4G	Inf.	120KΩ	Inf.	30Ω	.1Ω	30Ω	.2Ω	120KΩ	
V 26	16RP4A	0Ω	1.2Meg	PIN 10 ¶80Ω	PIN 11 85KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
† MEASURED FROM PIN 8 OF V24
¶ MEASURED FROM PIN 8 OF V25
▲ MEASURED FROM PIN 3 OF V22

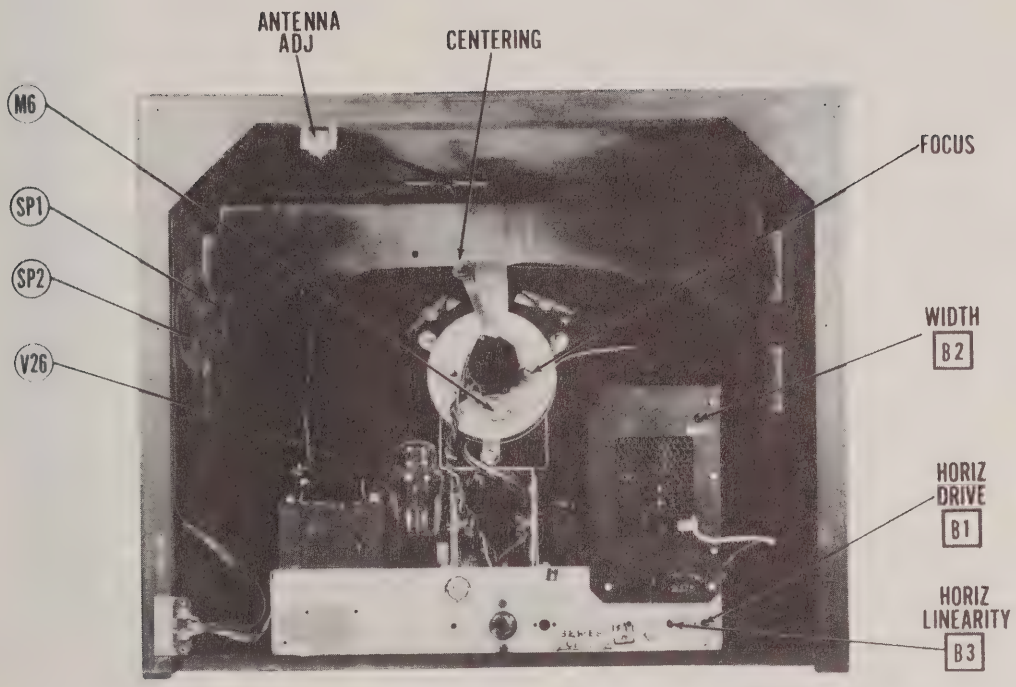
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Adjust the horizontal hold control until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer, (B1), counter clockwise as far as possible without crowding or vertical lines appearing in the picture.

Adjust the width slug, (B2), until the picture fills the mask horizontally.

Adjust the horizontal linearity slug, (B3), until the picture is symmetrical from left to right. Slight readjustment of B1 may be required for optimum results.

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove six wood screws securing rear cover in place. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove antenna terminal strip.
5. Disconnect speaker.
6. Remove six hex head bolts from chassis. Remove chassis.
7. Remove four hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS (Continued)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6CB6	6CB6	6CK	
B	RF Amplifier	6BC5	6BC5	7BD	
C	RF Amplifier	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd Video IF Amp.	6AU6	6AU6	7BK	
V6	4th Video IF Amp.	6AU6	6AU6	7BK	
V7	Video Detector - DC Restorer	6AL5	6AL5	6BT	
V8A	Video Amplifier	6AG5	6AG5	6BT	
B	Video Amplifier	6AU6	6AU6	7BK	
V9A	Keyed AGC	6AG5	6AG5	7BD	
B	Keyed AGC	6AU6	6AU6	7BK	
V10	Cathode Follower	6C4	6C4	6BG	
V11	Video Output	6K6GT	6K6GT	7S	
V12A	1st Sound IF Amp.	6BH6	6BH6	7CM	
B	1st Sound IF Amp.	6AU6	6AU6	7BK	
V13A	2nd Sound IF Amp.	6AU6	6AU6	7BK	
B	2nd Sound IF Amp.	6BH6	6BH6	7CM	
V14	Dynamic Limiter - Ratio Detector - AF Amplifier	6T8	6T8	9E	
V15	Audio Output	6V6GT	6V6GT	7AC	
V16	Sync. Clipper - Sync. Separator - Sync. Phase Inv.	12AU7	12AU7	9A	
V17	Vert. Oscillator	6J5	6J5	6Q	
V18A	Vertical Amplifier	6S4	6S4	9AC	
B	Vertical Amplifier	6SN7GT	6SN7GT	8BD	
V19	Horiz. Phas.	6AL5	6AL5	6BT	
V20	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V21	Horiz. Output	6CD6G	6CD6G	5BT	
V22	Damper	6W4GT	6W4GT	4CG	
V23	H.V. Rectifier	1B3GT	1B3GT	3C	
V24	L.V. Rectifier	6X5GT	6X5GT	6S	
V25	L.V. Rectifier	5U4G	5U4G	5T	
V26A	Picture Tube	16RP4A	16RP4A	12D	
B	Picture Tube	16RP4	16RP4	12D	
C	Picture Tube	16TP4	16TP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	W508072	AFH886J		UPT44445		TVL-3787	▪ Filter
B	40	450							■ Filter
C	40	450							▲ Filter
C2A	20	300		AFH1242G		UPT6245		TVL-2579	▲ Filter
B	60	300	W508073						▪ Filter
C3	4	150	W502547	PRS150/4		BR415		TVA-1402	Stabilizing Cap
C4	4	450	W504719	PRS450/4		BR445		TVA-1702	Decoupling
C5	50	25	W502527	PRS25/50		BR502A		TVA-1206	Output Cathode
C6	10	600	W508680	PRS600/10		BRHV610		TVA-1902	Decoupling
C7	100	50	W508682	PRS50/100		BRH501		TVA-1310	Vert. Output Cath.
C8	5	50	W508684	PRS150/4		BR550		TVA-1303	Horiz. Output Cath.
C9	10	150	W505174	PRS150/12		BR1015		TVA-1406	Dyn. Limiter Cap
C10	3-9		W509064						Variable Trimmer
C11	.5-3		W507968		829-3				Variable Trimmer
C12	120		W513439	SI120	D6-121		GP2K-121	19C29	RF Amp. Dec.
C13	1000		W513009	BPD-001	DD-102		801-001	19C1	RF Amp. Fil.
C14	100		W513440	SI100N750	TCN-100		N750L-101	29C16	RF Coupling
C15	.5-3		W507968		829-3				Variable Trimmer
C16	20		W513441	SI20NPO	TCZ-20		NPOK-200		Osc. Grid Cap
C17	10		W513442	SI10N750	TCN-10		N750K-100	19C4	Fixed Trimmer
C18A	1000		{BPD-2X001	{DD-2X001			812-001	29C7	RF Bypass
B	1000		W508576						Conv. Filament
C19	10		W153444	SI10NPO	TCZ-10		NPOK-100	19C3	Fixed Trimmer
C20	120		W512542	SI120	D6-121		GP2K-121	19C29	IF Coupling
C21	.5-3		W509063		829-3				Variable Trimmer
C22	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	AGC Filter
C23	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	1st V. IF Dec.
C24	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	1st V. IF Fil.
C25	240	500	W512532						Fixed Trimmer
C26	82		W513016	SI82	TCZ-82	5W5T1	GP1K-820	19C11	IF Coupling
C27	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	AGC Filter
C28	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	2nd V. IF Dec.
C29	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	2nd V. IF Fil.
C30	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	RF Bypass
C31	82		W513016	SI82	TCZ-82	5W5T1	GP1K-820	19C11	IF Coupling
C32	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	AGC Filter
C33	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	3rd V. IF Dec.
C34	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	3rd V. IF Fil.
C35	82		W513016	SI82	TCZ-82	5W5T1	GP1K-820	19C11	IF Coupling
C36	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	4th V. IF Dec.
C37	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	4th V. IF Fil.
C38	5		W513432	SI5NPO	TCZ-4.7	5W5V5	NPOK-050	MS-55	V. Diode Filter
C39	5000		W513013	BPD-005	DD-502	1D5D5	811-005	29C1	V. Det.-DC Res. Fil.
C40	.25	200	W512045	P488-25		GT2P25		2TM-P25	V. Amp. Screen
C41	.05	200	W512027	P288-05	DF-503	PTE4S5		2TM-S5	AGC Filter
C42	.25	200	W512045	P488-25		GT2P25		2TM-P25	AGC Filter
C43	100		W513003	SI100	D6-101	5W5T1	GP1K-101	19C11	Peaking
C44	1	200	W512083	P288-1	DF-104	PTE4P1		2TM-P1	Video Coupling
C45	.05	200	W512027	P288-05	DF-503	PTE4S5		2TM-S5	Video Coupling
C46	.05	600	W512031	P688-05	DF-503	PTE6S5		6TM-S5	Video Coupling
C47	.05	600	W512031	P688-05	DF-503	PTE6S5		6TM-S5	Video Coupling
C48	2.2		W513001		TCZ-2.2				S. IF Coupling
C49	5000		W513013	BPD-005	DD-502	1D5D5	811-005	29C1	1st S. IF Dec.
C50	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	1st S. IF Fil.
C51	5000		W513013	BPD-005	DD-502	1D5D5	811-005	29C1	1st S. IF Dec.
C52	5000		W513013	BPD-005	DD-502	1D5D5	811-005	29C1	RF Bypass
C53	220		W513018	SI220	D6-221	5W5T25	GP2K-221	19C13	RF Bypass
C54	47		W513433	SI47	D6-470	5W5Q5	GP1K-470	19C25	S. IF Coupling
C55	5000		W513013	BPD-005	DD-502	1D5D5	811-005	29C1	2nd S. IF Dec.

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C56	5000		W513013	BPD-005	DD-502	1D5D5	811-005	29C1	2nd S. IF Fil.
C57	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	S. IF Coupling
C58	1500		W513010	SI1500	D6-152	1W5D15	GP2L-152	29C8	RF Bypass
C59	220	500	W512537	SI220	D6-221	5W5T25	GP2K-221	19C13	Diode Load Cap
C60	1500		W513010	SI1500	D6-152	1W5D15	GP2L-152	29C8	De-emphasis
C61	.05	200	W512027	P288-05	DF-503	PTE4S5		2TM-S5	Audio Coupling
C62	.005	600	W512007	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Tone Comp.
C63	.005	600	W512007	P688-005	D6-502	PTE6D5	811-005	6TM-D5	Audio Coupling
C64A	250		† W505858	SI250	†PC-70	5W5T25	GP2K-251	1FM-325	AF Amp. Plate
B	5000			BPD-005		1D5D5	811-005	29C1	Audio Coupling
C65	1500		W513010	SI1500	D6-152	1W5D15	GP2L-152	29C8	Decoupling
C66	.002	600	W512003	P688-002	D6-202	PTE6D2	GP2-333-202	6TM-D2	Output Plate
C67	.25	200	W512045	P488-25		GT2P25		2TM-P25	Sync. Coupling
C68A	10000		† W5-862	P688-01		PTE6S1	GP2-333-103	6TM-S1	Vert. Sync. Coupling
B	2000			P688-002	♦PC-100	PTE6D2	GP2-333-202	6TM-D2	Integrator Net
C	5000			P688-005	DD-103	PTE6D5	GP2-333-502	6TM-D5	Integrator Net
D	5000			P688-005		PTE6D5	GP2-333-502	6TM-D5	Integrator Net
C69	4700	1000	W512533	1467-005	D6-472	1D5D5	GP2-333-472	1FM-25	Vert. Osc. Grid
C70	.1	600	W512037	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C71	.05	600	W512308	P688-05		PTE6S5		6TM-S5	Vert. Discharge
C72	.05	600	W512031	P688-05		PTE6S5		6TM-S5	Integrator Net
C73	.02	600	W512019	P688-02	DF-203	PTE6S2		6TM-S2	Vert. Sweep Coupling
C74	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	Horiz. Sync. Coupling
C75	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	Horiz. Sync. Coupling
C76	.05	600	W512031	P688-05	DF-503	PTE6S5		6TM-S5	Horiz. Feedback
C77	.01	600	W512013	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Horiz. AFC Filter
C78	5000		W513013	BPD-005	DD-502	1D5D5	811-005	29C1	Horiz. AFC Filter
C79	.05	200	W512027	P288-05	DF-503	PTE4S5		2TM-S5	Horiz. AFC Filter
C80	3900	500	W512540	1464-004		1DE5D4		MS-24	Fixed Trimmer
C81	330	500	W512541	SI330	D6-331	5W5T3	GP2K-331	1FM-335	Horiz. MV Feedback
C82	390	500	W512535	1469-0004	D6-391	5R5T4	GP2K-391	MS-34	Horiz. Discharge
C83	270	500	W512536	1468-00025	D6-271	5W5T25	GP2K-271	1FM-325	Horiz. Sweep Coupling
C84	.05	600	W512031	P688-05	DF-503	PTE6S5		6TM-S5	Horiz. Output Screen
C85	3.3	1500	W513025						Horiz. Feedback
C86	.05	600	W512031	P688-05		PTE6S5		6TM-S5	Damper Filter
C87	.05	600	W512031	P688-05		PTE6S5		6TM-S5	Damper Filter
C88	.1	600	W512037	P688-1	DF-104	PTE6P1		6TM-P1	Horiz. Sweep Coupling §
C89	.003	600	W512005	P688-003	D6-302	PTE6D3	GP2-333-302	6TM-D3	Fixed Trimmer *
C90	500	20000	W508888	HV20C	TV2-502				HV Filter
C91	1000		W513009	SI1000	D6-102	1W5DI	GP2L-102	19C1	Filament Bypass #
C92	.01	400	W512255	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter
C93	.01	400	W512255	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Line Filter
C94	.02	600	W512019	P688-02		PTE6S2		6TM-S2	Vert. Discharge *

* Not used in all models.
† Items C64A, C64B, R63A and R63B are combined into one unit.
† Items C68A, C68B, C68C, C68D, R72A, R72B and R72C are combined into one unit.
# Some models use 220MMF in this application.
§ Some models use .25MFD in this application.
♦ Use CRL Part # DD-103 in series with #1 lead of CRL Part # PC-100.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	INSTALLATION NOTES
R1A	3000Ω	2	W508892				Contrast Control - Wire Wound - Front
B	1Meg	½					Volume Control And SW-Tapped@ 200KΩ Rear
R2A	50KΩ	½	W508889	Q11-123	AG-44-S	AN-31	Brightness Control
B	Shaft		WNot req.	Not req.	RS-2	AK-4	Attach to R2A Per Instructions
R3A	2.5Meg	½	W508893				Height Control - Front
B	1Meg	½					Vertical Hold Control - Rear
R4A	5000Ω	½	W508891	Q11-114	AM-19-S	AN-10	Vertical Linearity Control
B	Shaft		WNot req.	Not req.	RS-2	AK-4	Attach to R4A Per Instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R5	3900Ω 20%	1	W510147	BTS-3900	Antenna Coil Shunt
R6	47KΩ 20%	1	W510167	BTS-47K	AGC Network
R7	2200Ω 20%	1	W510143	BTS-2200	RF Amp. Decoupling
R8	10KΩ 20%	1	W510155	BTS-10K	RF Coil Shunt
R9	4700Ω 20%	1	W510149	BTS-4700	Mixer Grid
R10	220KΩ 20%	1	W510179	BTS-220K	Mixer Grid
R11	15KΩ 20%	1	W510158		Mixer Plate
R12	10KΩ	1	W510155	BTS-10K	Osc. Grid
R13	4700Ω	1	W510149	BTS-4700	Osc. Plate
R14	1000Ω	1	W510137	BTS-1000	AGC Network
R15	6800Ω	1	W510151		1st Video IF Amp. Grid
R16	270Ω	1	W510126	BTS-270	1st Video IF Amp. Cathode
R17	1000Ω	1	W510137	BTS-1000	1st Video IF Amp. Decoupling
R18	1000Ω	1	W510137	BTS-1000	AGC Network
R19	8200Ω	1	W510153		2nd Video IF Amp. Grid
R20	82Ω	1	W510117	BTS-82	2nd Video IF Amp. Cathode
R21	1000Ω	1	W510137	BTS-1000	2nd Video IF Amp. Decoupling
R22	1000Ω	1	W510137	BTS-1000	AGC Network
R23	8200Ω	1	W510153		3rd Video IF Amp. Grid
R24	82Ω	1	W510117	BTS-82	3rd Video IF Amp. Cathode
R25	1000Ω 5%	1	W510137	BTS-1000-5%	3rd Video IF Amp. Decoupling
R26	6800Ω	1	W510151		4th Video IF Transformer Shunt
R27	100Ω	1	W510119	BTS-100	4th Video IF Amp. Cathode
R28	1000Ω	1	W510137	BTS-1000	4th Video IF Amp. Decoupling
R29	82000Ω	1	W510153		5th Video IF Transformer Shunt
R30	4700Ω	1	W510148	BTS-4700	Video Detector Diode Load
R31	33KΩ 20%	1	W510164	BTS-33K	Keyed AGC Grid
R32	100KΩ 20%	1	W510173	BTS-100K	AGC Network
R33	10KΩ 20%	1	W510155	BTS-10K	AGC Network
R34	15KΩ 20%	1	W510257	BTA-15K	Voltage Divider
R35	8200Ω	1	W510253	BTA-8200	Video Amp. Screen
R36	47KΩ	1	W510166	BTS-47K	Video Peaking Coil Shunt
R37	5600Ω	1	W510150	BTS-5600	Video Amp. Plate
R38	5600Ω	1	W510150	BTS-5600	Video Amp. Plate
R39	1Meg	½	W510191	BTS-1Meg	Cathode Follower Grid
R40	12KΩ	2	W510356	BTB-12K	Cathode Follower Cathode - See Note 5
R41	1Meg	½	W510191	BTS-1Meg	Video Output Grid
R42	270Ω	2	W510126	BTS-270	Video Output Cathode
R43	1500Ω	2	W510339	BTB-1500	Video Output Plate
R44	1500Ω	2	W510339	BTB-1500	Video Output Plate
R45	12KΩ	½	W510723	BTS-12K	Video Peaking Coil Shunt
R46	12KΩ	½	W510156	BTS-12K	Isolation
R47	1Meg 20%	½	W510191	BTS-1Meg	DC Restorer Diode Load
R48	2200Ω 20%	1	W510143	BTS-2200	Vertical Retrace Blanking Network
R49	18KΩ 20%	½	W510159	BTS-18K	Voltage Divider
R50	82KΩ	½	W510171	BTS-82K	Voltage Divider
R51	100KΩ 20%	½	W510173	BTS-100K	Picture Tube Grid
R52	22KΩ 20%	½	W510161	BTS-22K	Picture Tube Cathode
R53	82Ω	1	W510117	BTS-82	1st Sound IF Amp. Cathode
R54	1000Ω	1	W510137	BTS-1000	1st Sound IF Amp. Screen
R55	470KΩ	½	W510185	BTS-470K	2nd Sound IF Amp. Grid
R56	82Ω	1	W510117	BTS-82	2nd Sound IF Amp. Cathode
R57	1000Ω	1	W510137	BTS-1000	2nd Sound IF Amp. Decoupling
R58	18KΩ	½	W510159	BTS-18K	Ratio Detector Diode Load
R59	18KΩ	½	W510159	BTS-18K	Ratio Detector Diode Load
R60	22KΩ	½	W510160	BTS-22K	De-emphasis
R61	68KΩ	½	W510170	BTS-68K	Tone Comp.
R62	10Meg	½	W510197	BTS-10Meg	AF Amp. Grid
R63A	470KΩ	½	W 505858 †	BTS-470K	AF Amp. Plate
B	470KΩ	½		BTS-470K	AF Amp. Output Grid
R64	330Ω	1	W 510227	BTA-330	AF Amp. Output Cathode
R65	8200Ω	½	W 510153	BTS-8200	Decoupling
R66	33KΩ	½	W 510163	BTS-33K	Limiter Load
R67	560KΩ	½	W 510180	BTS-560K	Sync. Sep. Grid - See Note 2
R68	330K	½	W 510181	BTS-330K	Sync. Sep. Plate
R69	1800Ω 5%	½	W 510739	BTS-1800-5%	Sync. Phase Inverter Cathode
R70	1800Ω 5%	½	W 510739	BTS-1800-5%	Sync. Phase Inverter Plate
R71	1800Ω 5%	½	W 510739	BTS-1800-5%	Sync. Phase Inverter Plate
R72A	22KΩ	½	W 508062 †	BTS-22K	Integrator
B	8200Ω	½		BTS-8200	Integrator
C	8200Ω	½		BTS-8200	Integrator
R73	1.5Meg 5%	½	W510721	BTS-1.5Meg-5%	Vertical Osc. Coil
R74	1.2Meg	½	W510738	BTS-1.2Meg	Vertical Osc. Plate
R75	6.8Meg 20%	½	W510196	BTS-6.8Meg	Voltage Divider
R76	100KΩ 20%	½	W510172	BTS-100K	Voltage Divider
R77	6800Ω	½	W510151	BTS-6800	Vertical Peaking
R78	2.2Meg 20%	½	W510193	BTS-2.2Meg	Vertical Output Grid
R79	680Ω	1	W510133	BTS-680	Vertical Output Cathode
R80	3000Ω 5%	2	W510713		Decoupling - See Note 4
R81	100KΩ 20%	½	W510172	BTS-100K	Horiz. Phase Detector Diode Load
R82	100KΩ 20%	½	W 510172	BTS-100K	Horiz. Phase Detector Diode Load
R83	4.7Meg	½	W 510195	BTS-4.7Meg	Horiz. Phase Detector Diode Load
R84	27KΩ	½	W 510162	BTS-27K	Horiz. Phase Detector Diode Load
R85	470KΩ 2%	½	W 510185	BTS-470K	Horiz. AFC Filter
R86	1500Ω	½	W 510139	BTS-1500	Horiz. MV Cathode
R87	3900Ω	½	W 510174	BTS-3900	Horiz. MV Plate
R88	100KΩ 20%	½	W 510172	BTS-100K	Horiz. MV Grid
R89	270KΩ	½	W 510180	BTS-270K	Horiz. MV Plate
R90	68Ω 20%	2	W510116		Parasitic Supp.
R91	470KΩ	½	W 510179	BTS-470K	Horiz. Output Grid - See Note 3
R92	220Ω	5	W 510716	1 3/4A-225	Horiz. Output Cathode - Wire Wound
R93	12KΩ	2	W 510356	BTB-12K	Horiz. Output Screen
R94	12KΩ	2	W 510356	BTB-12K	Horiz. Output Screen - See Note 1
R95	10KΩ	1	W 510254	BTA-10K	Horiz. Feedback
R96	680Ω	1	W 510133	BTS-680	Damping - See Note 1
R97	3.3Ω	2	W 510725		HV Rectifier Filament - See Note 1
R98	1Meg	½	W 510191		HV Filter
R99	1000Ω	10	W 510754	1 3/4A-1000	Filter - Wire Wound
R100	850Ω	5	W 510726		Filter - Wire Wound
R101	100Ω	2	W 510319	BW-2-100	Surge Limiter
R102	220KΩ 20%	½	W 510179	BTS-220K	Isolation
R103	39KΩ	1	W 510265	BTA-39K	Horizontal Output Screen - See Note 1
R104	4.3Ω	1	W 510704	BW-1-4.3	Series Pilot Light - Wire Wound

† Items R63A, R63B, C64A and C64B are combined into one unit.
† Items R72A, R72B, R72C, C68A, C68B, C68C and C68D are combined into one unit.
Note 1. Not used in all models.
Note 2. Some models use 270KΩ resistor in this application.
Note 3. Some models use 220KΩ resistor in this application.
Note 4. Some models use 7500Ω resistor in this application.
Note 5 Some models use series resistors in this application to obtain desired value.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC @ 2.1A	680VCT .230ADC	400VCT .075ADC	5VAC @ 3A SEC. 4 6.3VAC @10.4A	W508702		P-3067 ④	

④ Add series resistor to reduce plate voltage.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	153Ω	940Ω	W508076	A-8111 ①	A-3000 ①	TB0-1 ①	Vert. Block Osc. Trans.
T3	440Ω Tap 44Ω	7.2Ω or Tap 4.9Ω SEC. 2 0Ω	W508679 or W508971	A-8130	HV0-6		Horiz. Output Trans
T4	1.1KΩ Tap 13Ω		W508956	A-8123	A-3037 ①		Vert. Output Trans.
T5A	13Ω		W508675	DY-7	MDF-70		Horiz. Deflection Coil
B	49Ω						Vertical Deflection Coil

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T6	6KΩ	3.5Ω	630Ω	.9Ω	W505912	A-3823	A-3019	RO-9 ①	① Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.5Ω	W50815 7 ③	ST-108 Mod. P6-X	6A15	
	CONE DIA.	V. C. DIA.				
SP2	6"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ↺)	SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.230A	73Ω	2.9 Henries	W508341	C-2325	C-2991 ①	TR-3300①	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	IRC PART No.	
L2	Ant. Coil	0Ω	0Ω	W307963			Channel 13
L3	Fil. Choke	0Ω		W507970			
L4	RF, Mixer Grid And Osc. Coils	0Ω		W507983			Channel 13
L5	Fil. Choke	0Ω		W507971			
L6	1st Video IF	.8Ω		W509061			
L7	Fil. Choke	0Ω		W507584			
L8	Sound Atten. Trap	0Ω		W509056			
L9	2nd Video IF	.2Ω		W507343			
L10	3rd Video IF	.2Ω		W507343			
L11	Fil. Choke	0Ω		W507584			
L12	4th Video IF	.2Ω		W507343			
L13	RF Choke	2.5Ω		W507367			
L14	Fil. Choke	.22Ω		W507587		CLA	.47 Microhenries
L15	5th Video IF	.2Ω	2.5Ω	W507591			
L16	Fil. Choke	.8Ω		W507586		CLA	1 Microhenry
L17	Peaking	28Ω		W507374			
L18	Peaking	28Ω		W507374			
L19	Peaking	4.5Ω		W508069			
L20	Peaking	5Ω		W508070			
L21	1st Sound IF	2Ω	2Ω	W508061			
L22	RF Choke	15Ω		W507373			Red Dot
L23	2nd Sound IF	2Ω	2Ω	W508061			
L24	Fil. Choke	.8Ω		W507586		CLA	1 Microhenry
L25	Sound Disc.	6Ω	.2Ω	W507321			Tap .9Ω
L26	RF Choke	15Ω		W507373			Blue Dot
L27	Horiz. Hold	80Ω		W508967			
L28	Horiz. Width	26Ω	40Ω	W508667			
L29	Damping Coil	6Ω		W509615			
L30	Horiz. Lin.	4.5Ω		W162190			

FUSES

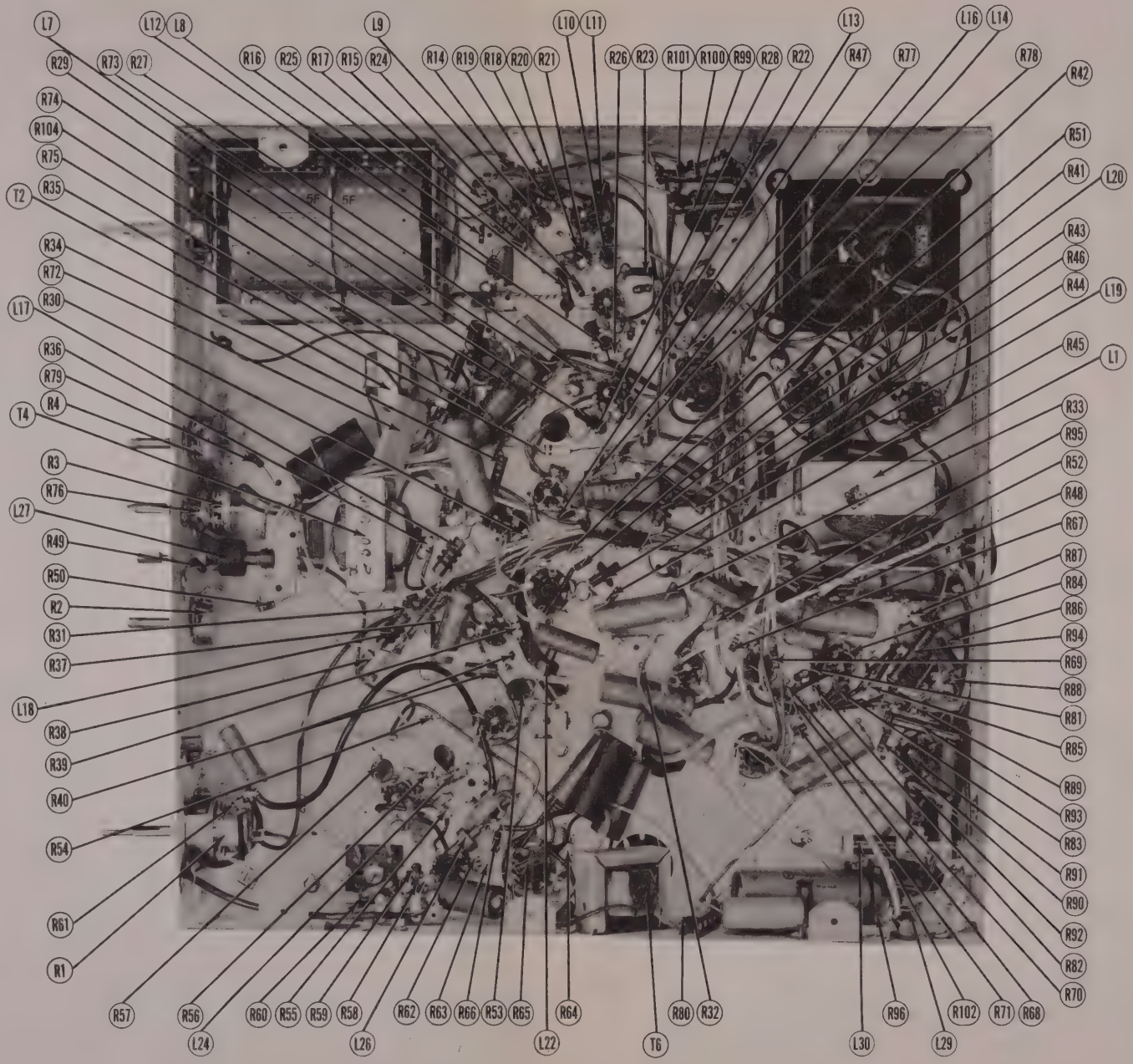
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			SILVERTONE PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	.250A	W508713	W508714	312.250	155020	
M2	3AG PigTail	1A	W509517		318001		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					SILVERTONE PART No.		
M3	Bayonet	6-8	.15	Brown	W 118921		Type #47

MISCELLANEOUS

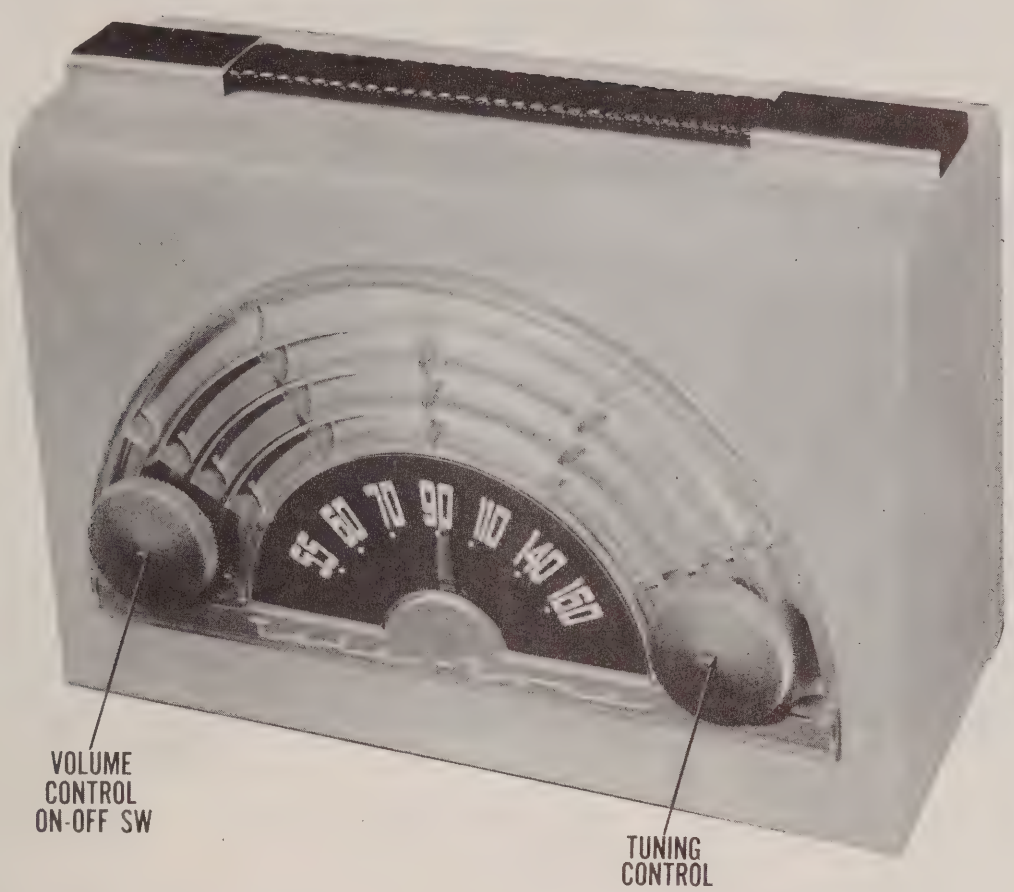
ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M4	RF Tuner	W508890	
M5	Focus Magnet	W509595	
M6	Ion Trap	W508603	
B1	Trimmer	W508071	Horizontal Drive (10-160MMF)
	Antenna Coil	W507952	Channel 2
		W507953	Channel 3
		W507954	Channel 4
		W507955	Channel 5
		W507956	Channel 6
		W507597	Channel 7
		W507958	Channel 8
		W507959	Channel 9
		W507960	Channel 10
		W507961	Channel 11
		W507962	Channel 12
	RF, Mixer Grid And Oscillator Coils	W507972	Channel 2
		W507973	Channel 3
		W507974	Channel 4
		W507975	Channel 5
		W507976	Channel 6
		W507977	Channel 7
		W507978	Channel 8
		W507979	Channel 9
		W507980	Channel 10
		W507981	Channel 11
		W507982	Channel 12
	Knob	W509369	Off / On Volume
	Knob	W509349	Fine Tuning
	Knob	W509348	Channel Selector
	Knob	W509368	Contrast



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

TELE-TONE
MODEL 228 (Ch. BL)

TELE-TONE
MODEL 228 (Ch. BL)



TELE-TONE
MODEL 228 (Ch. BL)

TRADE NAME	Tele-Tone, Model 228 (Ch. BL)
MANUFACTURER	Tele-Tone Radio Corp., Amboy Avenue and Myrtle Street, Elizabeth 2, New Jersey
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 1R5 Converter, 1U4 IF Amp., 1U5 Det.-AVC-AF, 354 Power Output, 117Z3 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC or 4.5Volts "A" Supply and 67.5 Volts "B" Supply
RATING	.14Amp. @ 117 Volts AC or 108 MA @ 4.5 Volts DC and 8MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	532.5-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1Mfd.	High side to stator on rear section of tuning gang. Low side to B-.	455KC (400~Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop or receiver. Adjust foramaximum output.
3.		Loop	1400KC	Tune for max. output.	"	A6	"
4.		Loop	532.5KC	Tuning gang fully closed.	"	A7	Adjust for maximum output. Repeat steps 2, 3, and 4 until no further improvement can be obtained.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TELE-TONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det.-AVC-AF	1U5	1U5	6BW	
V4	Power Output	3S4	3S4	7BA	
V5	Rectifier	117Z3	117Z3	4CB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TELE-TONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	CE17	PRS150/40-					Filter
B	40	150		40		EDL5315X		TVA-3433	Filter
C	200	10		PRS12/250		20			Fil. Filter
C2	.05	200	CP503-2	P288-05	DF-503	PTE4S5		2TM-S5	Conv. Fil.
C3	.05	200	CP503-2	P288-05	DF-503	PTE4S5		2TM-S5	AVC Filter
C4	47	500	CP470-1	1469-00005	D6-470	5R5Q5	GP1K-470	MS-45	Osc. Grid Cap.
C5	.01	200	CP103-2	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Osc. Anode Cap.
C6	.01	200	CP103-2	P488-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	IF Amp. Grid Filter
C7	.05	200	CP503-2	P288-05	DF-503	PTE4S5		2TM-S5	Fil. Bypass
C8	.001	200	CP102-3	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Audio Coupling
C9A	.0001		CC5-2	1468-0001	D6-101	5W5T1	GP1K-101		Diode RF Filter
B	.01			P688-01	D6-103	PTE6S1	GP2-333-103		AF Amp. Screen
C	.0001			1468-0001	D6-101	5W5T1	GP1K-101		AF Amp. Plate
D	.002			P688-002	D6-202	PTE6D2	GP2-333-202		Audio Coupling
C10	.005	600	CP502-2	P688-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Output Plate
C11	.047	400	CPM503-1	P488-047	DF-503	PTE4S5		4TM-S47	Rectifier Plate
C12	.1	200	CP104-1	P288-1	DF-104	PTE4P1		2TM-P1	Isolation

CONTROLS

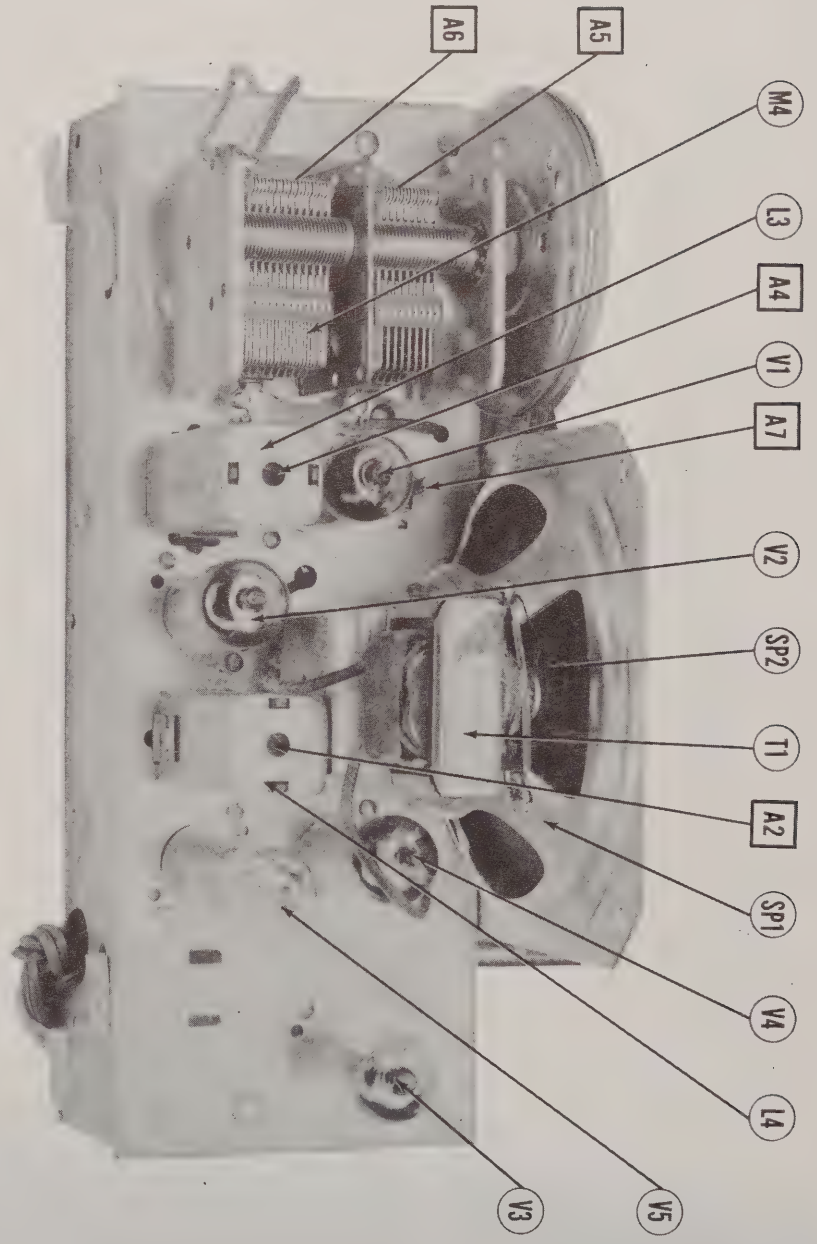
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELE-TONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	1Meg	½	VC-20	Q13-137	AG-63-Z	B-70-S	Volume Control
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R1A per instructions
C	Switch		Not req.	76-2	SWB-2	Not req.	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELE-TONE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	100KΩ	½	RC-104-1	BTS-100K	Osc. Grid
R3	15KΩ	½	RC-153-1	BTS-15K	Osc. Anode
R4	10Meg	½	RC-106-1	BTS-10Meg	IF Amp. Grid
R5	3.3Meg	½	RC-335-1	BTS-3.3Meg	AVC Network
R6	10Meg	½	RC-106-1	BTS-10Meg	AF Amp. Grid
R7	3.3Meg	½	RC-335-1	BTS-3.3Meg	AF Amp. Screen
R8	1.2Meg	½	RC-125-1	BTS-1.2Meg	AF Amp. Plate - See Note 1
R9	2.2Meg	½	RC-225-1	BTS-2.2Meg	Output Grid
R10	680Ω	½	RC-681-2	BTS-680	Bias Network
R11	39Ω	½	RC-390-2	BW-½-39	Filament String - Wire Wound
R12	27Ω	½	RC-270-2	BW-½-27	Filament String
R13	2200Ω	½	RC-222-2	BTS-2200	Filament String
R14	1500Ω	½	RC-152-2	BTS-1500	Filament String
R15	390Ω	½	RC-391-2	BTS-390	Filament String
R16	2550Ω	5	RP-5		Filament Dropping - Wire Wound
R17	5000Ω	1	RC-622-5	BTA-5600	Filter - See Note 2
R18	18Ω	½	RC-180-1		Rectifier Ballast

NOTE 1 Some models use 1Meg Resistor in this application.
NOTE 2 Some models use 6200Ω Resistor in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TELE-TONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	5.5KΩ	3.3Ω	330Ω	.5Ω		A-3329 ②	A-2927 ②	RO-13 ②	② Bend mounting tabs down file out slots and mount on original brackets.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TELE-TONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD	V. C. IMP.	SP41-18 ①	ST113 Model P4-X	4A07	① Includes output transformer.
	PM	33Ω				
SP2	CONE DIA.	V. C. DIA.				
	4"	9/16"				

R F COILS

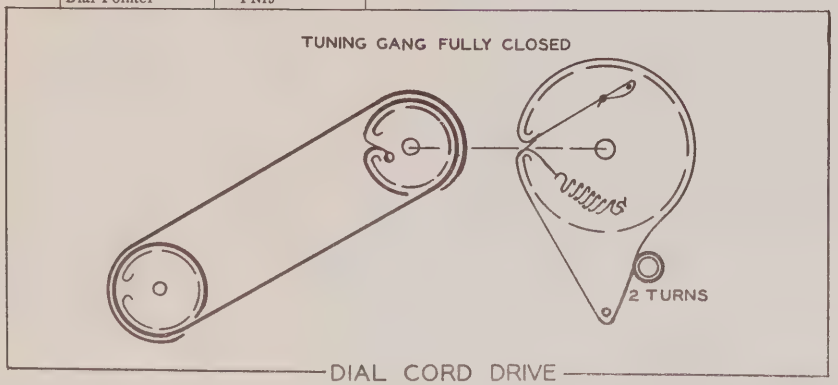
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	TELE-TONE PART No.	MEISSNER PART No.	
L1	Loop Ant.	3.4Ω		LP15		
L2	Osc. Coil	1.5Ω	7Ω	LC8		
L3	1st. IF	27Ω	27Ω	LF22		
L4	2nd. IF	27Ω	27Ω	LF22		

BATTERIES

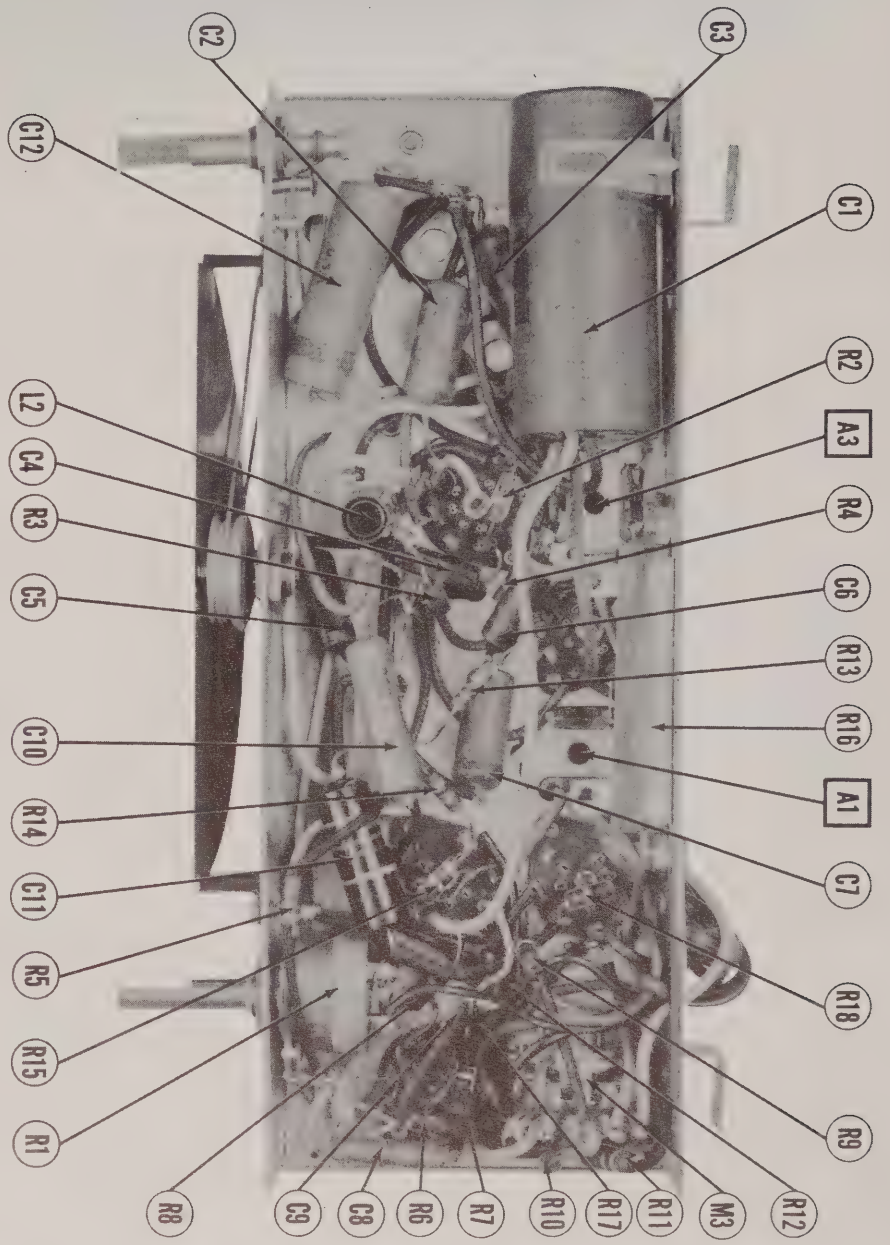
ITEM No.	VOLTAGE	TELE-TONE PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	4.5V "A"		746			G3			
M2	67.5V "B"			467			XX45		

MISCELLANEOUS

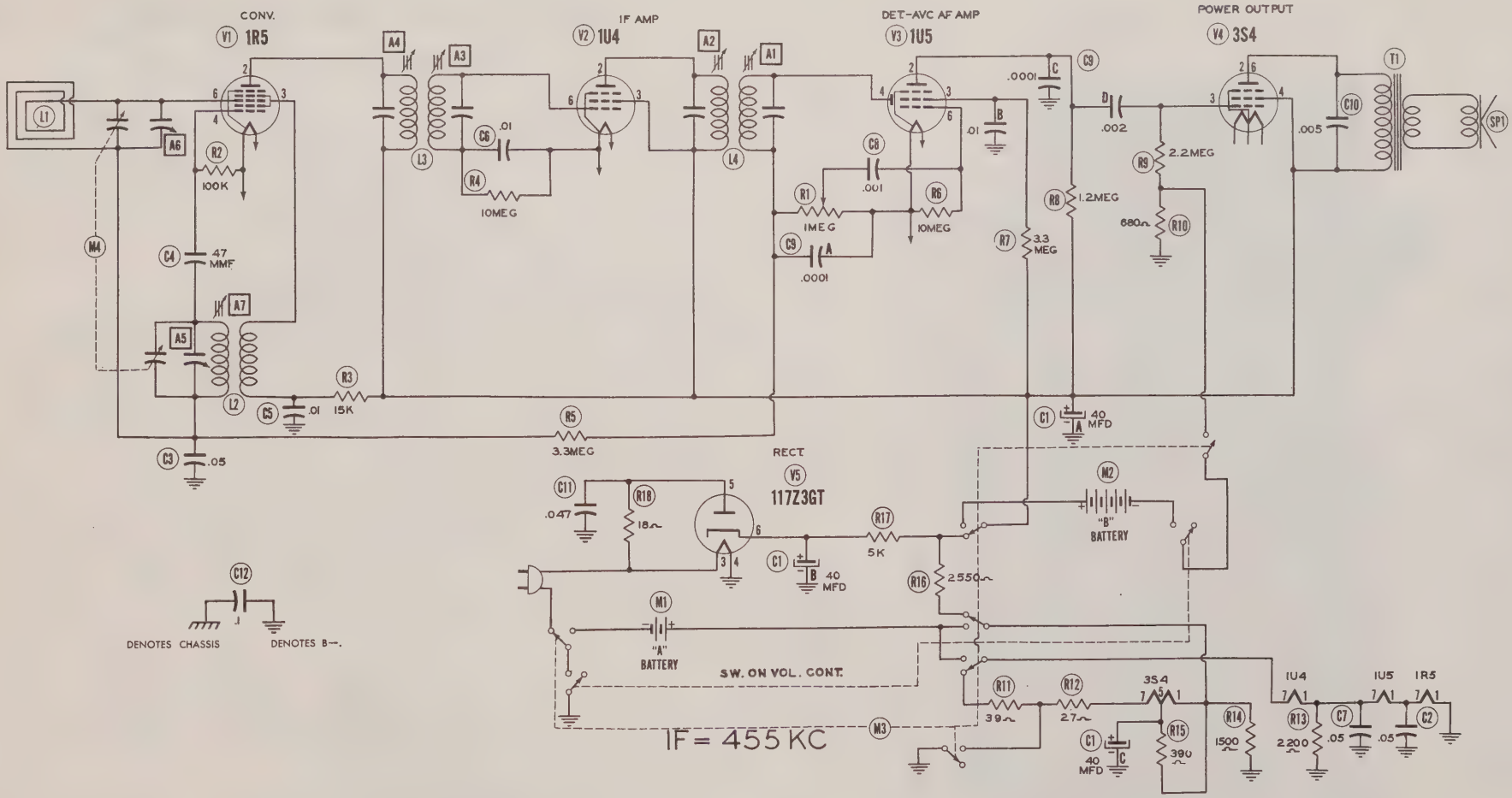
ITEM No.	PART NAME	TELE-TONE PART No.	NOTES
M3	Switch	SW11	AC/DC-Battery
M4	2 Gang Var. Cap. Dial Pointer	CV15 PN19	(28-392MMF, 31-175MMF)



CHASSIS—BOTTOM VIEW



TELE-TONE MODEL 228



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	0V	65VDC	46VDC	3-5.3VDC	0V	0V	2VDC
V 2	1U4	4.2VDC	65VDC	65VDC	0V	4.2VDC	0V	6.8VDC
V 3	1U5	2VDC	7.4VDC	4VDC	.3VDC	0V	0V	4.2 VDC
V 4	3S4	13VDC	65VDC	65VDC	0V	15VDC	65VDC	16VDC
V 5	117Z3	110VAC	0V	117VAC	0V	110VAC	115VDC	0V

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†5KΩ	†20KΩ	100KΩ	*	4.3Meg	*
V 2	1U4	*	†5KΩ	†5KΩ	Inf.	*	10Meg	*
V 3	1U5	*	†1.2Meg	†3.3Meg	1Meg	Inf.	10Meg	*
V 4	3S4	*	†5.3KΩ	2.2Meg	†5KΩ	*	†5.3KΩ	*
V 5	117Z3	1.2KΩ	Inf.	*	*	1.2KΩ	2.7KΩ	Inf.

† MEASURED FROM PIN 7 OF V5.

ALL MEASUREMENTS TAKEN IN AC/DC POSITION.

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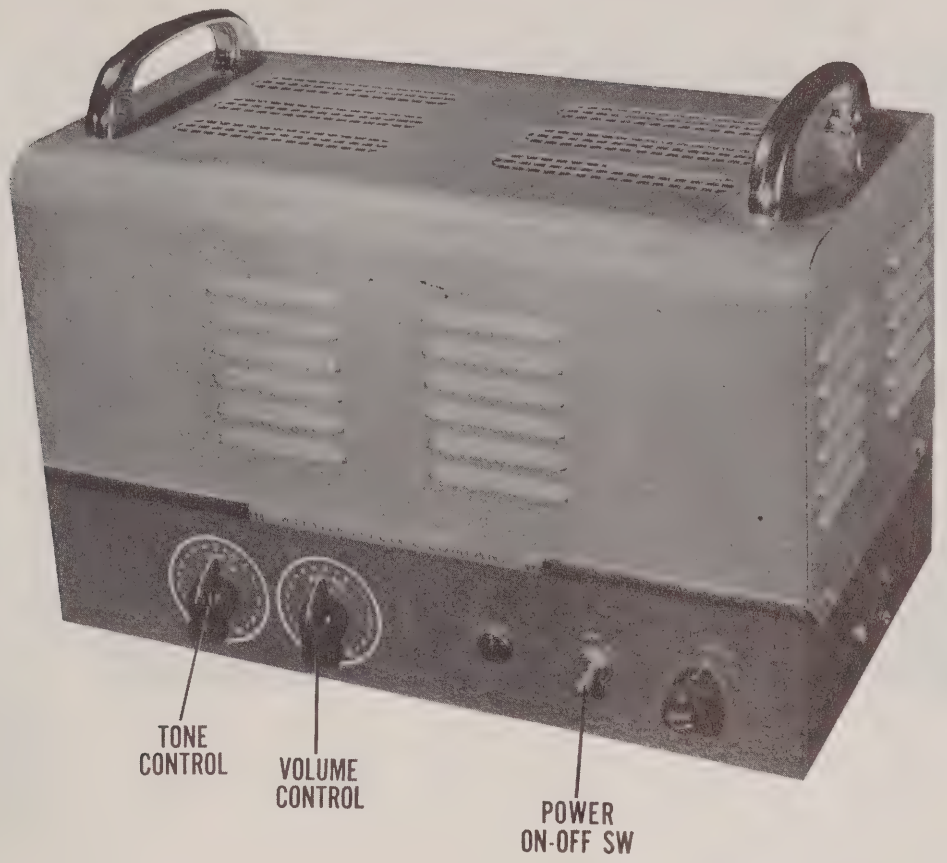
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

WEBSTER ELECTRIC
MODEL 85-25



WEBSTER ELECTRIC
MODEL 85-25

TRADE NAME	Webster Electric, Model 85-25
MANUFACTURER	Webster Electric Co., Racine, Wisconsin
TYPE SET	AC Operated Audio Amplifier
TUBES (FOUR)	Types 6SL7GT AF Amp.-Phase Inv., (2) 6L6G Power Output, 5U4G Rectifier
POWER SUPPLY	110-120 Volts AC RATING 1.05 Amp. at 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

WEBSTER ELECTRIC
MODEL 85-25

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Webster Electric PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	AF Amplifier-Phase Inverter	6SL7GT	6SL7GT	8BD	
V2	Power Output	6L6G	6L6G	7AC	
V3	Power Output	6L6G	6L6G	7AC	
V4	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Webster Electric PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	30	500		GL500/30		WR30			Filter
C2	8	450		GL475/8		KR508		PLS-8	Output Screen
C3	50	100		GLS100/50		KR530			Output Cathode
C4	50	6		SRE6/50		BBR50-6		TVA-1100	AF Amp. Cathode
C5	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Tone Comp.
C6	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Audio Coupling
C7	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Audio Coupling
C8	500			SI500	D6-501	5W5T5	GP2K-501	5GA-T5	Output Grid

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Webster-Elec PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1	2000	½					Tone Control
R2A	500KΩ	½		Q13-133	AM-60-Z	B-60	Volume Control
B	Shaft			Not req	RS-2	Not req.	Attach to R2A per instructions

RESISTORS

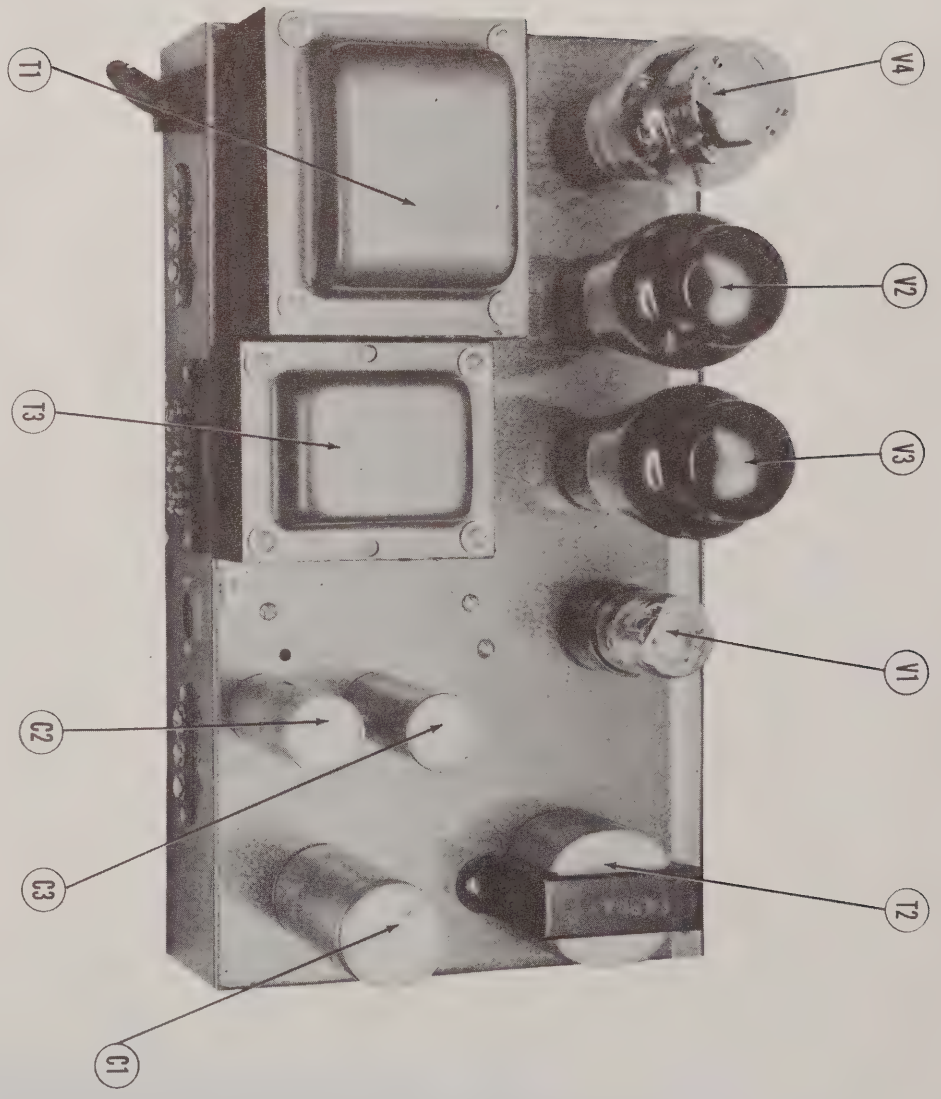
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Webster Electric PART No.	IRC PART No.	IDENTIFICATION CODES
R3	51Ω	1			Input Impedance Matching
R4	510Ω	1			Input Impedance Matching
R5	2000Ω	½		BTS-2200	AF Amp. Cathode
R6	100Ω	½		BTS-100	AF Amp. Cathode
R7	1000Ω	1		BTA-1000	Feedback
R8	240KΩ	½		BTS-220K	AF Amp. Plate
R9	2000Ω	½		BTS-2200	Phase Inv Cathode
R10	240KΩ	½		BTS-220K	Phase Inv Plate
R11	6200Ω	½		BTS-6800	Phase Inv Grid
R12	100KΩ	½		BTS-100K	Output Grid
R13	100KΩ	½		BTS-100K	Output Grid
R14	225Ω	5		1 3/4A-225	Output Cathode - Wire Wound
R15	1000Ω	5		1 3/4A-1000	Filter - Wire Wound
R16	10KΩ	25		2½DA-10K	Bleeder - Wire Wound

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Webster Electric PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 1.05A	640VCT .150ADC	5VCT @ 3A	6.3VAC @ 2.3A	212-13115	PM8411 ③	P-3072 ①	PH-120B

① Drill new mounting holes.
③ Add series resistor to reduce plate voltage.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (INPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		Webster Elec. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2			25Ω	190Ω	212-14804				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		Webster Elec. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T3	3.7KΩ CT	2Ω 4Ω 8Ω 250Ω 500Ω	175Ω CT	.2Ω .3Ω .5Ω 8Ω 13Ω	212-14421		A-3129 ②		② Drill one new mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	Webster Elec. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.040A	570Ω	15 Henries	212-13122	C-1708	C-2987	R-650	② Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			WEBSTER ELECTRIC PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	2A			312002	342001	

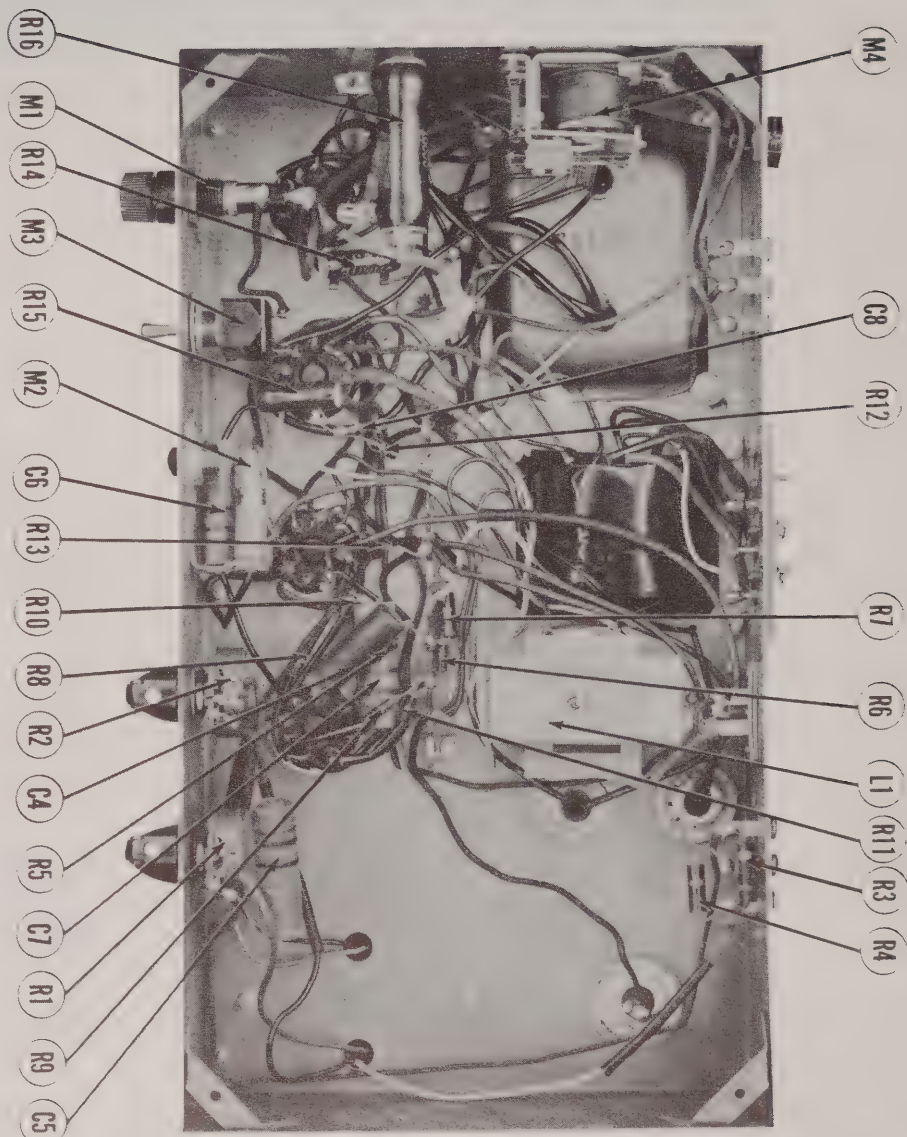
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Webster Elec. PART No.		
M2	Bayonet	7.5	.2	White			Type # 51

MISCELLANEOUS

ITEM No.	PART NAME	Webster Electric PART No.	NOTES
M3	Switch		On-Off
M4	Relay		

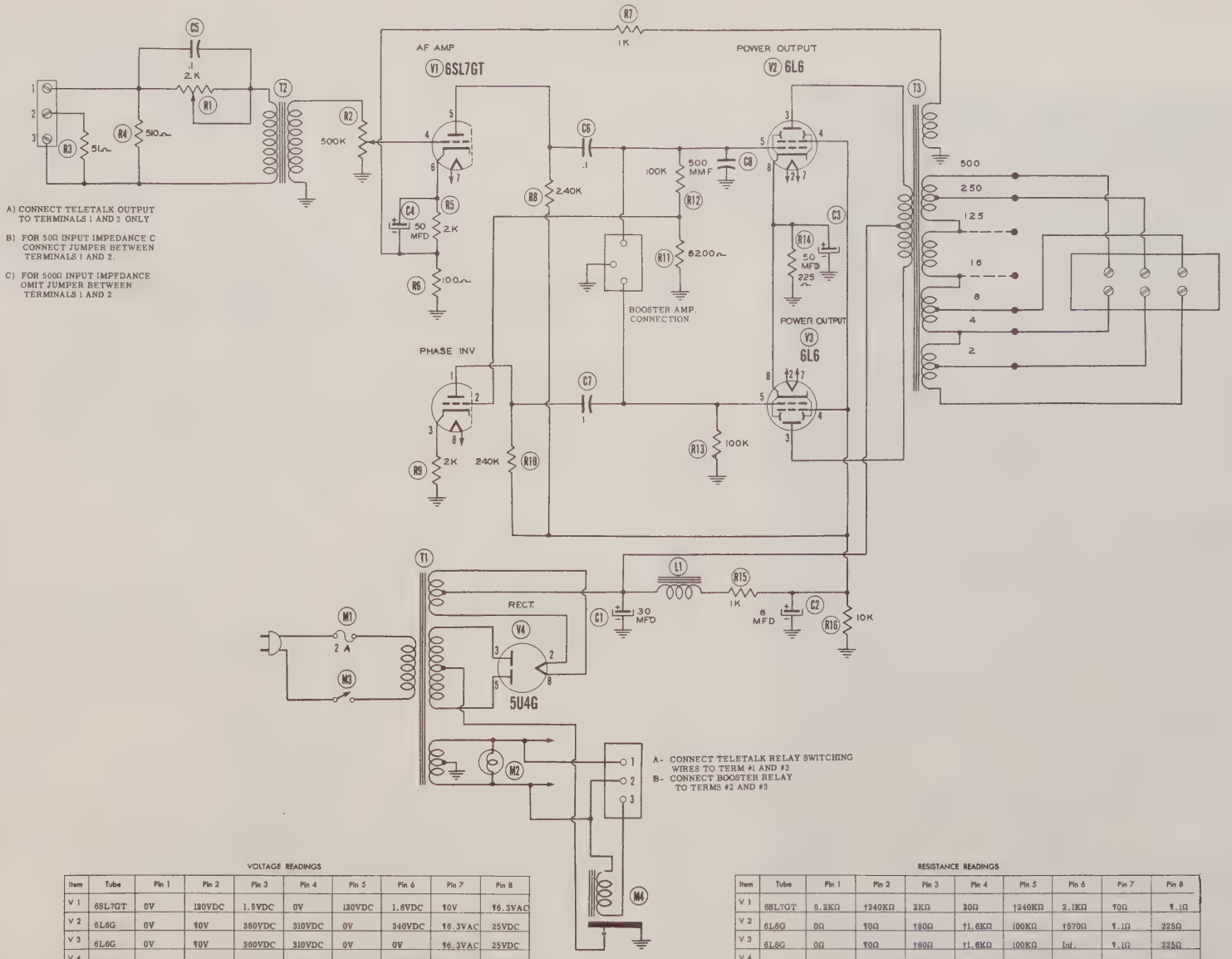
CHASSIS—BOTTOM VIEW



SET 144 FOLDER 14

WEBSTER ELECTRIC MODEL 85-25

WEBSTER ELECTRIC MODEL 85-25


AF AMP
V1 6SL7GT
POWER OUTPUT
V2 6L6
V3 6L6
PHASE INV
BOOSTER AMP. CONNECTION
RECT.
V4 5U4G
A) CONNECT TELETALK OUTPUT TO TERMINALS 1 AND 3 ONLY
B) FOR 500Ω INPUT IMPEDANCE C CONNECT JUMPER BETWEEN TERMINALS 1 AND 2.
C) FOR 500Ω INPUT IMPEDANCE OMIT JUMPER BETWEEN TERMINALS 1 AND 2
A- CONNECT TELETALK RELAY SWITCHING WIRES TO TERM #1 AND #3
B- CONNECT BOOSTER RELAY TO TERMS #2 AND #3
JUMPER ACROSS 1 AND 3 ON RELAY

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SL7GT	0V	120VDC	1.5VDC	0V	120VDC	1.6VDC	¶0V	¶6.3VAC
V 2	6L6G	0V	¶0V	360VDC	310VDC	0V	340VDC	¶6.3VAC	25VDC
V 3	6L6G	0V	¶0V	360VDC	310VDC	0V	0V	¶6.3VAC	25VDC
V 4	5U4G	0V	360VDC	0V	320VAC	0V	320VAC	0V	360VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SL7GT	6.2KΩ	†240KΩ	2KΩ	20Ω	†240KΩ	2.1KΩ	¶0Ω	¶.1Ω
V 2	6L6G	0Ω	¶0Ω	†80Ω	†1.6KΩ	100KΩ	†570Ω	¶.1Ω	225Ω
V 3	6L6G	0Ω	¶0Ω	†60Ω	†1.6KΩ	100KΩ	Inf.	¶.1Ω	225Ω
V 4	5U4G	Inf.	11KΩ	Inf.	46Ω	Inf.	50Ω	Inf.	11KΩ

† MEASURED FROM PIN 8 OF V4
¶ MEASURED FROM PIN 2 OF V3

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144-14

1 - DC Voltage measurements are at 20, 000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

PHOTOFACT* Folder

*TRADE MARK

ZENITH MODELS H2029R, H2030E, R, H2041R, H2052R, H2053 (Ch. 20H20)

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MODEL H2030R

ZENITH MODELS H2029R, H2030E, R, H2041R, H2052R, H2053 (Ch. 20H20)

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DATE 9-51 SET 144 FOLDER 15

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*TRADE MARK

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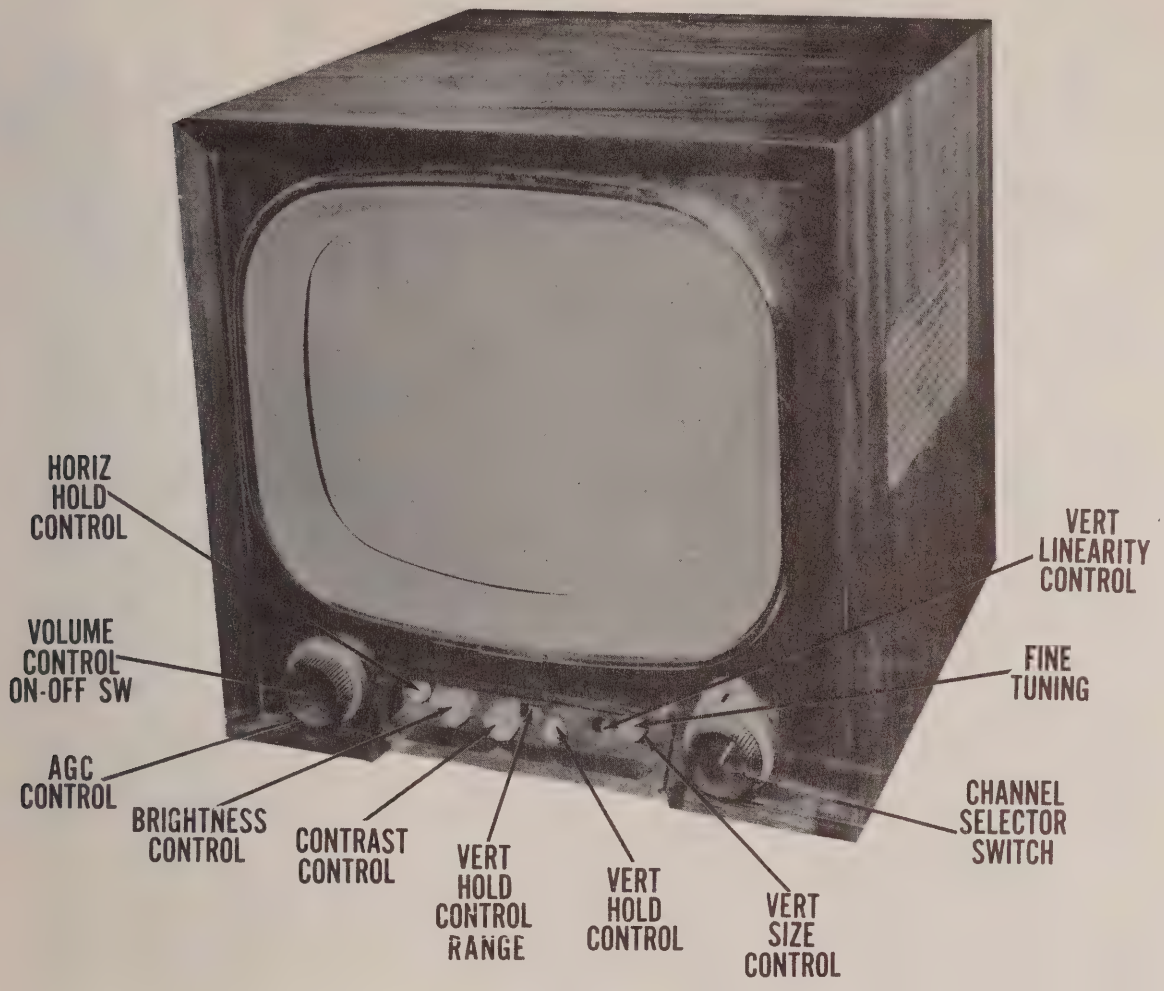

ZENITH MODELS H2029R, H2030E, R, H2041R, H2052R, H2053 (Ch. 20H20)

ZENITH MODEL H2030R

TRADE NAME	Zenith Models H2029R, H2030E, R, H2041R, H2052R, H2053 (Ch. 20H20)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Illinois
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.95 Amp. @ 117 Volts AC
TUNING RANGE	CHANNELS 2 thru 13

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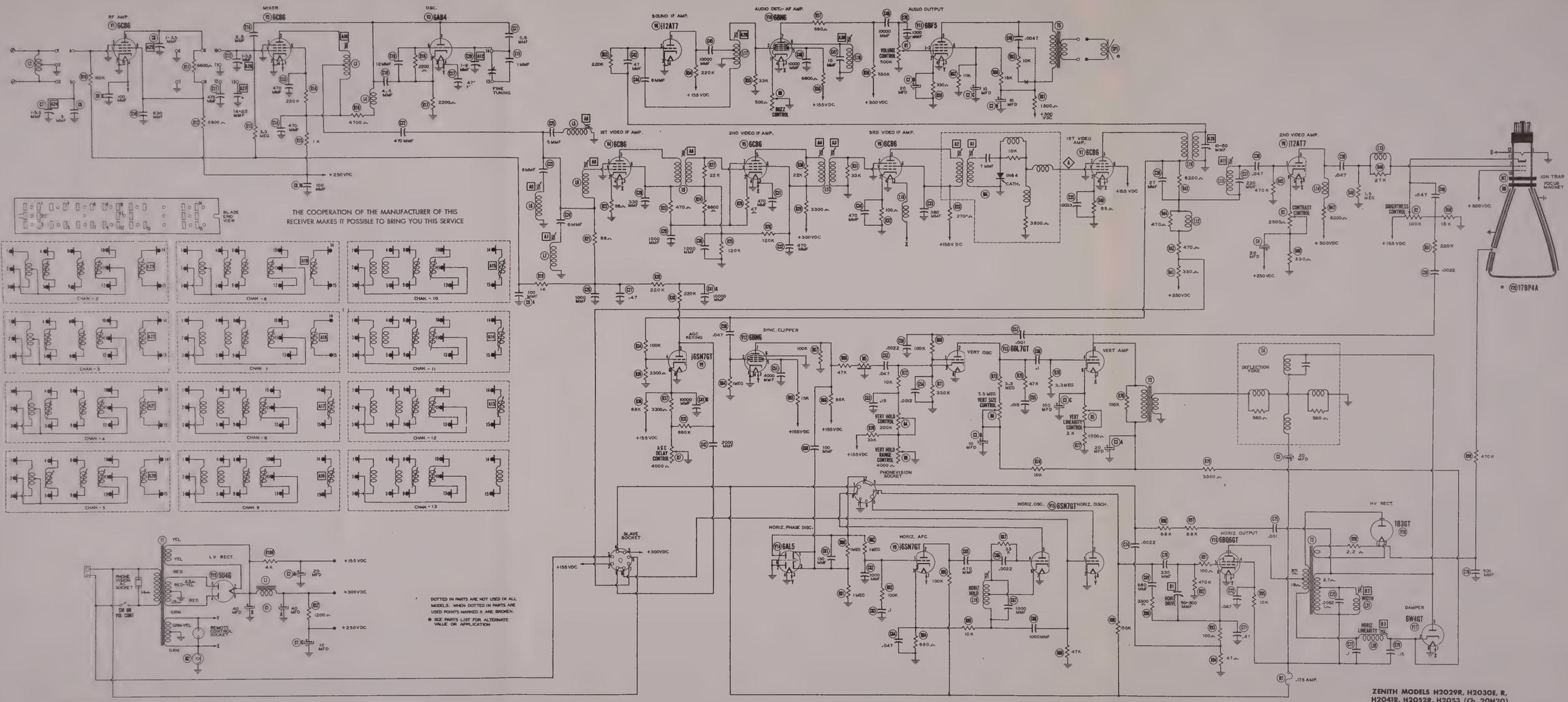

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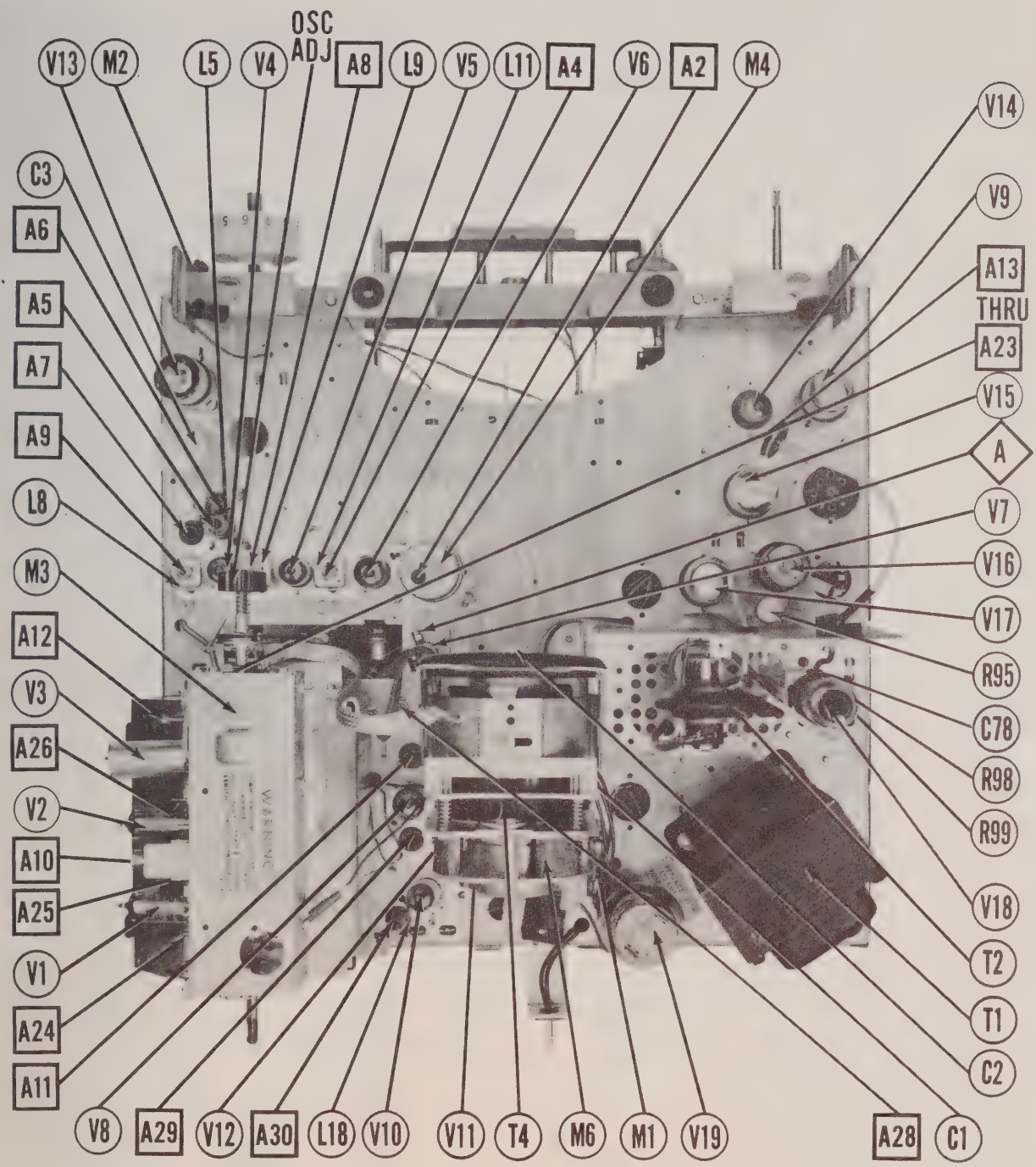
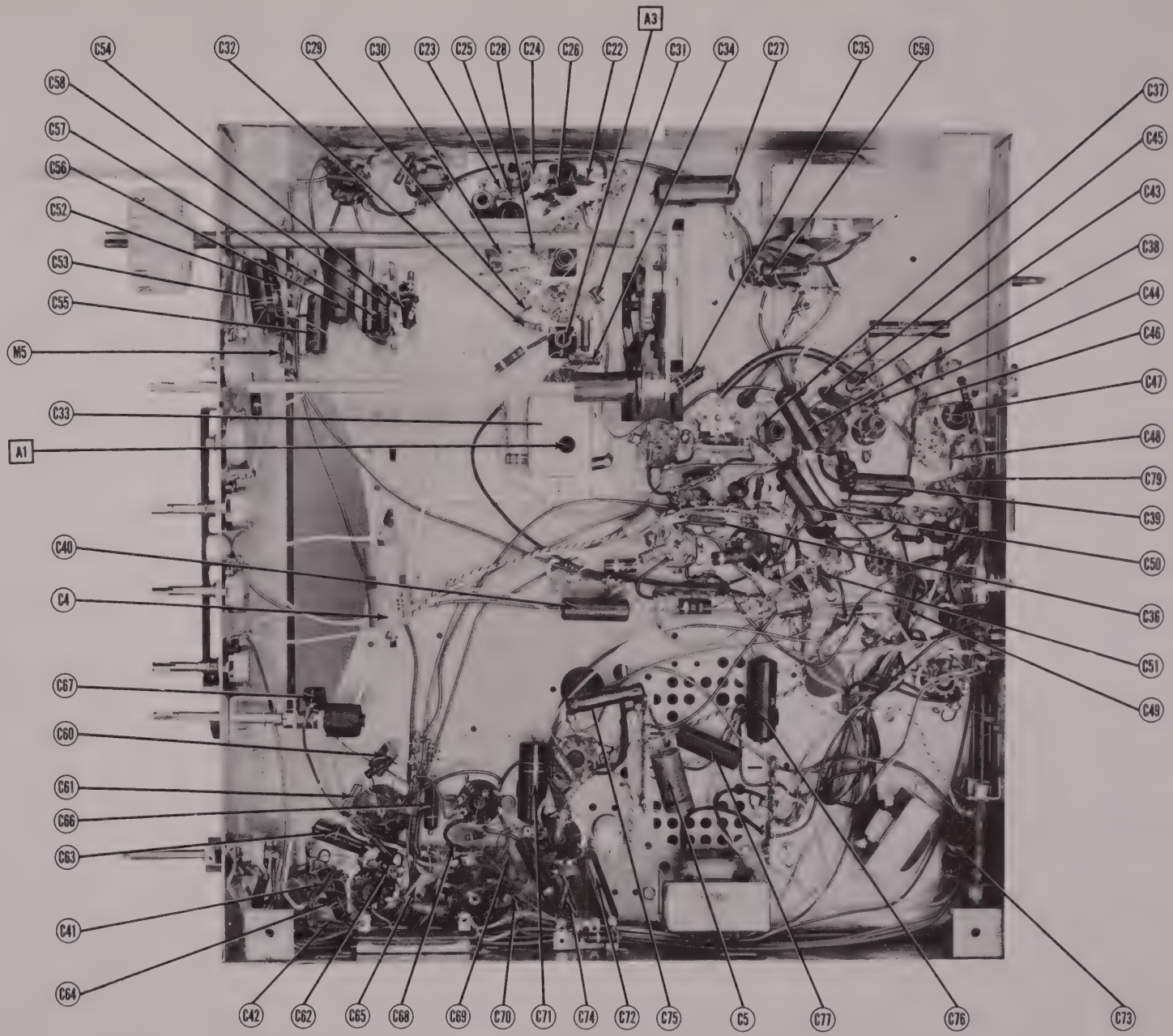
ZENITH MODELS H2029R, H2030E, R, H2041R, H2052R, H2053 (Ch. 20H20)



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ZENITH MODELS H2029R, H2030E, R, H2041R, H2052R, H2053 (Ch. 20H20)

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the local oscillator tube, (V3), from its socket to prevent the possibility of erroneous indications.
Connect the negative lead of a 6 volt battery to the junction of R10 and C9. Connect the positive lead to chassis.
During video IF alignment, attenuate sweep generator to maintain 2V. peak to peak response.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	470MMF.	High side to pin 1, (Grid) of 6CB6, (V6). Low side to chassis.	44MC (10MC SWP)	43.75MC	Any	Vert. Amp. thru 10KΩ resistor to Point A . Low side to chassis.	A1, A2	Adjust for response curve similar to fig. 1.
2.	"	High side to pin 1, (Grid) of 6CB6, (V5). Low side to chassis.	"	"	"	"	A3, A4	Adjust for response curve similar to fig. 2.
3.	"	High side to Point B . Low side to chassis.	"	39.75MC 41.25MC 47.25MC	"	"	A5, A6, A7	Disconnect the bias battery and ground the AGC line. Turn the oscilloscope vertical gain to maximum to "blow up" the response to to make the trap notches visable as shown in fig. 3. Adjust A5 for MINIMUM marker indication at the 39.75MC point on response. Adjust A6 for MINIMUM at 41.25MC, and A7 for MINIMUM at 47.25MC. A5 is not used in all chassis.
4.	"	"	"	41.75MC	"	"	A8	Unground AGC line and reconnect bias. Adjust sweep generator and scope to give 2 volt peak to peak response. Adjust A8 to place 41.95MC marker at 50% on response curve
5.	"	"	"	41.75MC 45MC 45.75MC	"	"	A9, A10	Adjust A9 and A10 altennately for response similar to fig. 4. If necessary slightly retouch A1, A2, A3, and A4 for proper response.

4.5MC TRAP ADJUSTMENTS

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.05MFD.	High side to Point A . Low side to chassis.	Not used	4.5MC (400∿ Mod.)	Any	Vert. Amp. to pin 2 of picture tube.	A11	Adjust for MINIMUM 400∿ indication on scope.

OSCILLATOR ALIGNMENT

Replace the local oscillator tube, (V3), in its socket.
Leave the bias connected as during video IF alignment.
Set the fine tuning control to the mid-position of its range.
The overall oscillator adjustment, (A12), is used to adjust the oscillator on channel 13, since channel 13 has no channel strip adjustment. A12 should not be adjusted for any other channel unless the channel strip adjustment shows insufficient range, and it has been definitely established that the channel strip is not at fault. If A12 is changed it will be necessary to readjust all channel strip adjustments. The channel strip adjustments are made by turning the channel selector to each channel, depressing and turning the oscillator adjust knob.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to Point A . Low side to chassis.	A12	Adjust to place video marker at 50% on response curve.
8.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"	A13	"
			201MC (10MC SWP)	199.25MC 203.75MC	11		A14	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A15	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A16	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A17	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A18	
			85MC (10MC SWP)	83.25MC 87.75MC	6		A19	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A20	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A21	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A22	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A23	

FIG. 1

FIG. 2

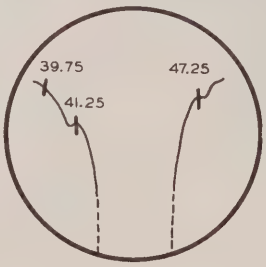


FIG. 3

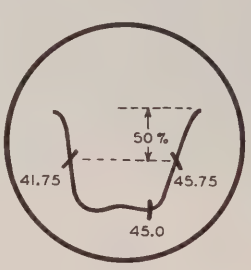


FIG. 4

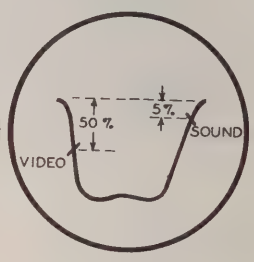


FIG. 5

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

Leave the bias battery connected.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon resistors.	Across antenna terminal with 120Ω in each lead.	69MC (10MC SWP)	67.25MC 71.75MC	4	Vert. Amp. thru 10KΩ to Point A . Low side to chassis.	A24, A25 A26	Check for response curve similar to fig. 5. If response is tilted, recheck video IF alignment. If video alignment is all right, adjust A24, A25, and A26 for maximum amplitude with sufficient band width.
10.	"	"	195MC (10MC SWP)	193.25MC 197.75MC	10	"	A27	Adjust for maximum amplitude and symmetry of response curve.
11.	"	"	57MC (10MC SWP)	55.25MC 59.75MC	2	"		Check all channels for response similar to fig. 5. If necessary make compromise adjustments of A24, A25 and A26 on the low channels and A27 on the high channels.
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			189MC (10MC SWP)	187.25MC 181.75MC	9			
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			207MC (10MC SWP)	205.25MC 209.75MC	12			
			213MC (10MC SWP)	211.25MC 215.75MC	13			

AGC SHOP ADJUSTMENT

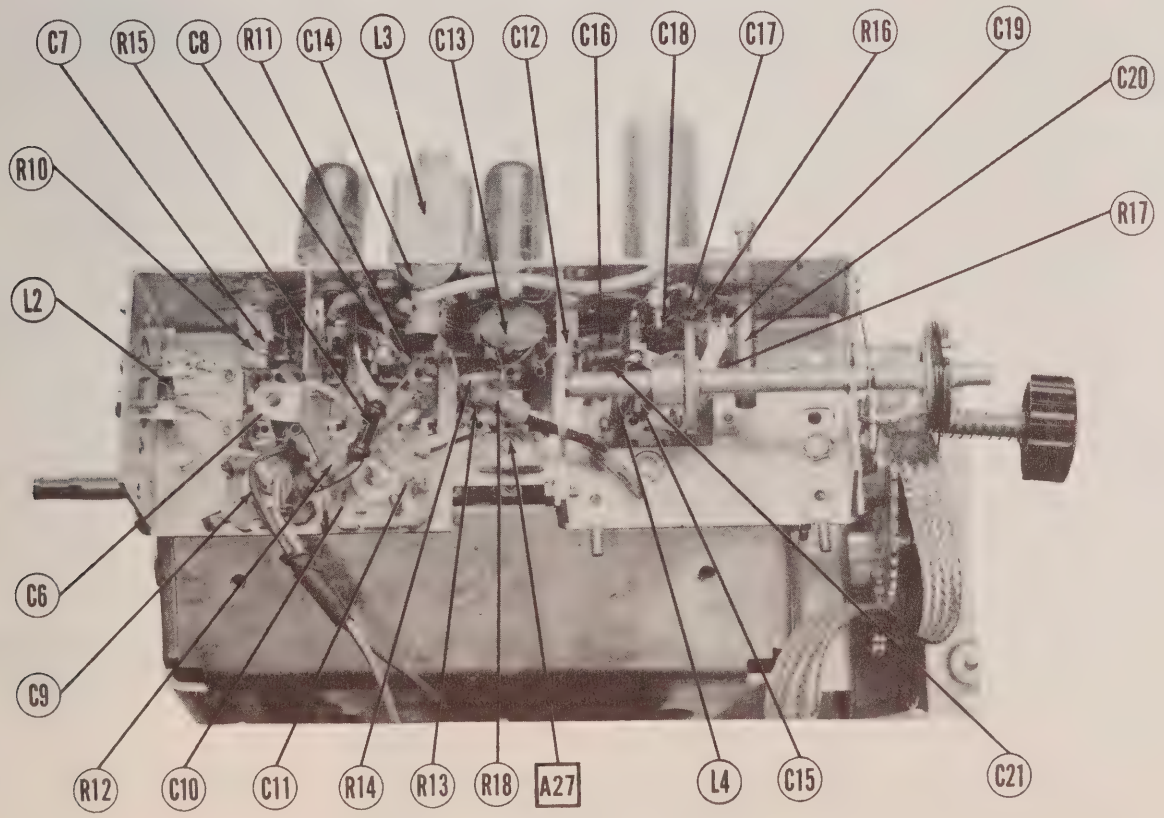
Restore the set to original operation conditions and connect an antenna.
Tune in a strong TV station.
Connect the vertical input of an oscilloscope to Point A .
Adjust the AGC delay control for a 2 volt peak to peak signal on the oscilloscope.

AGC FIELD ADJUSTMENT

Tune in a strong TV station and turn the contrast control to maximum.
Turn the AGC delay control to maximum clockwise.
Slowly turn the control counter-clockwise until the picture begins to distort and buzz is heard in the sound. Then turn the control clockwise to a point where the contrast is slightly higher than normal without distortion or buzz in the sound.

SOUND IF ALIGNMENT

Connect an attenuator (Zenith part # S17203) in series with the antenna.
Tune in a TV station and adjust the attenuator until the signal falls below the limiting level of the limiter-detector, as indicated by a hiss similar to superregeneration.
Adjust the sound take-off coil slug, (A28), sound IF coil slug, (A29), and the quadrature coil, (A30), for maximum audio of best quality. Adjust the buzz control, (R9), for minimum intercarrier buzz.
If any of these adjustments cause the signal to use above the limiting level of the detector, (hiss dissapears), attenuate the signal until the hiss returns.
If the intercarrier buzz cannot be sufficiently reduced, recheck the AGC adjustment.



RF TUNER

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	-3VDC	0V	0V	6.3VAC	220VDC	170VDC	0V		
V 2	6CB6	-2.3VDC	0V	6.3VAC	0V	250VDC	100VDC	0V		
V 3	6AB4	190VDC	§18VDC	0V	6.3VAC	0V	§18VDC	22VDC		
V 4	6CB6	.1VDC	.8VDC	6.3VAC	0V	120VDC	120VDC	0V		
V 5	6CB6	125VDC	130VDC	6.3VAC	0V	290VDC	290VDC	125VDC		
V 6	6CB6	0V	1.4VDC	6.3VAC	0V	100VDC	110VDC	0V		
V 7	6CB6	-.1VDC	.6VDC	6.3VAC	0V	190VDC	150VDC	0V		
V 8	12AT7	65VDC	-1.3VDC	0V	0V	0V	280VDC	0V	1.6VDC 6.2VDC	6.3VAC
V 9	6SN7GT	0V	65VDC	8.2VDC	6.4VDC	1.3VDC	16VDC	6.3VAC	0V	
V 10	6BN6	5VDC	0V	6.3VAC	0V	95VDC	0V	210VDC		
V 11	6BF5	0V	7.1VDC	6.3VAC	0V	235VDC	80VDC	0V		
V 12	6BN6	0V	-18VDC	6.3VAC	0V	60VDC	0V	80VDC		
V 13	6BL7GT	§.5VDC	150VDC 195VDC	19VDC 22VDC	§-1.8VDC	420VDC	22VDC 34VDC	6.3VAC	0V	
V 14	6AL5	7.3VDC	0V	6.3VAC	0V	7.3VDC	0V	.2VDC		
V 15	6SN7GT	§-78VDC	45VDC	0V	§32VDC	300VDC	85VDC	0V	6.3VAC	
V 16	6BQ6GT	0V	6.3VAC	0V	165VDC	-2.7VDC	.2VDC	0V	16VDC	Top Cap *
V 17	6W4GT	0V	.2VDC	460VDC	0V	300VDC	.2VDC	6.3VAC	0V	
V 18	1B3GT	* DO NOT MEASURE								
V 19	5U4G	0V	315VDC	0V	310VAC	0V	310VAC	0V	315VDC	
V 20	17BP4A	0V	0V	Pin 10 300VDC	Pin 11 22VDC 155VDC	Pin 12 6.3VAC	H.V. Connector ** 10.25KV			

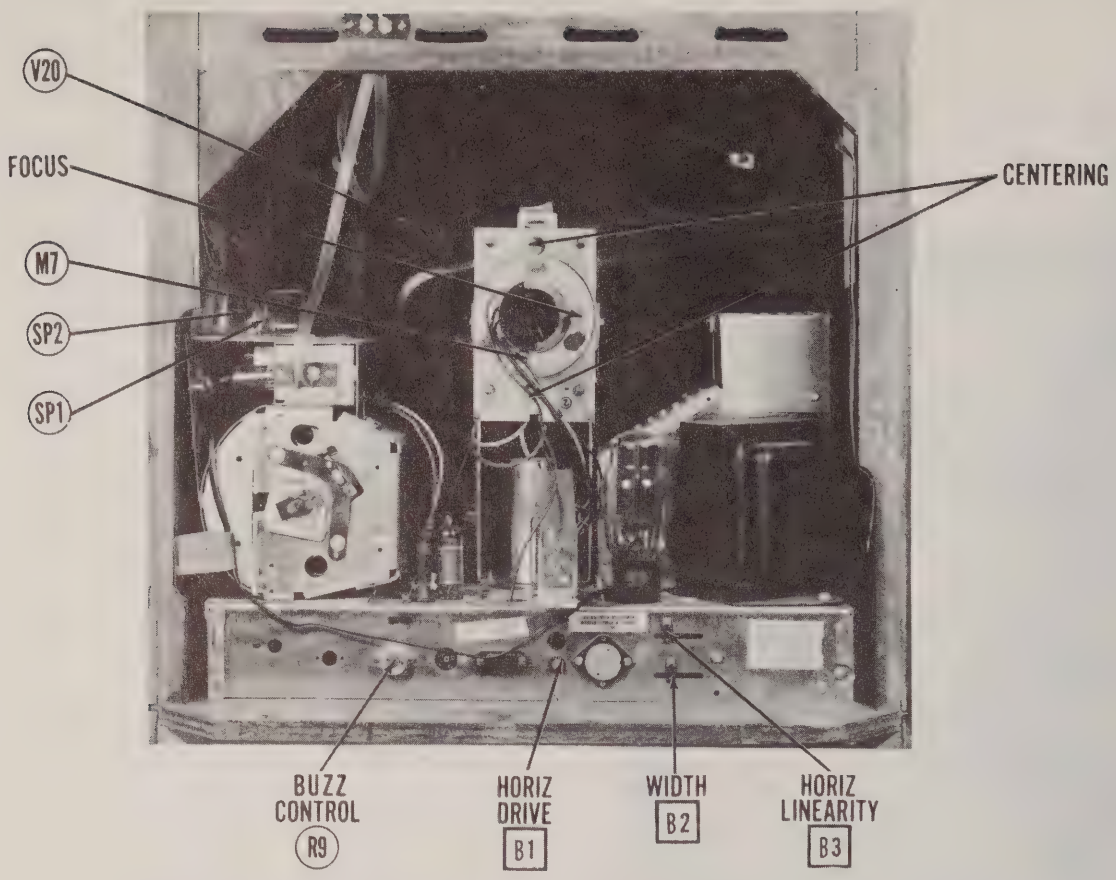
ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED.
§ TAKEN WITH VACUUM TUBE VOLTMETER.
** USE EXTREME CAUTION WHEN MEASURING THIS VOLTAGE.
* DO NOT MEASURE.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	1.2Meg	0Ω	0Ω	.1Ω	†8KΩ	†8KΩ	0Ω		
V 2	6CB6	4.4Meg	0Ω	.1Ω	0Ω	†2.2KΩ	†220KΩ	0Ω		
V 3	6AB4	†6.9KΩ	4.4KΩ	0Ω	.1Ω	Inf.	4.4KΩ	2.2KΩ		
V 4	6CB6	1.1Meg	56Ω	.1Ω	0Ω	†70KΩ	†70KΩ	0Ω		
V 5	6CB6	120KΩ	126KΩ	.1Ω	0Ω	†3.3KΩ	†3.3KΩ	126KΩ		
V 6	6CB6	.1Ω	100Ω	.1Ω	0Ω	†6.7KΩ	†6.7KΩ	0Ω		
V 7	6CB6	3.9KΩ	68Ω	.1Ω	0Ω	†8.2KΩ	†4KΩ	0Ω		
V 8	12AT7	†220KΩ	220KΩ	0Ω	0Ω	0Ω	†8.2KΩ	470KΩ	2.8KΩ 330Ω	.1Ω
V 9	6SN7GT	3Meg	†100KΩ	680Ω	3.3KΩ	680KΩ	7.3KΩ	.1Ω	0Ω	
V 10	6BN6	500Ω	4.8Ω	.1Ω	0Ω	†11KΩ	5.1Ω	†330KΩ		
V 11	6BF5	25Ω	330Ω	.1Ω	0Ω	†2.4KΩ	†11KΩ	25Ω		
V 12	6BN6	0Ω	1Meg	.1Ω	0Ω	†19KΩ	0Ω	†68KΩ		
V 13	6BL7GT	330KΩ	#10.8Meg #3.3Meg	210KΩ 14KΩ	3.3Meg	#3.9KΩ	3KΩ 2KΩ	.1Ω	0Ω	
V 14	6AL5	1Meg	0Ω	.1Ω	0Ω	1Meg	0Ω	2Meg		
V 15	6SN7GT	47KΩ	†150KΩ	0Ω	43KΩ	†90Ω	10KΩ	0Ω	.1Ω	
V 16	6BQ6GT	Inf.	.1Ω	Inf.	†10KΩ	470KΩ	2Meg	0Ω	147Ω	Top Cap #30Ω
V 17	6W4GT	Inf.	2.1Meg	160KΩ	Inf.	†100Ω	2Meg.	.1Ω	0Ω	
V 18	1B3GT	Pins 1-8 have Inf. Resistance								Top Cap #390Ω
V 19	5U4G	Inf.	10KΩ	Inf.	25Ω	Inf.	23Ω	Inf.	10KΩ	
V 20	17BP4A	0Ω	1.5Meg	Pin 10 †90Ω	Pin 11 †20KΩ †4KΩ	Pin 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED.
† MEASURED FROM PIN 8 OF V19.
# MEASURED FROM PIN 3 OF V17.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



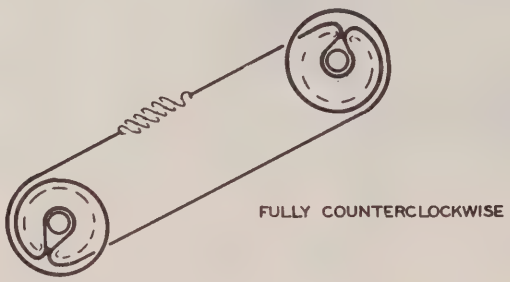
HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
Adjust the horizontal hold control until the picture synchronizes horizontally.
Turn the horizontal drive trimmer (B1) counter-clockwise as far as possible without crowding the right half of the picture.
Adjust the width slug, (B2) until the picture is slightly wider than necessary to fill the mask horizontally.
Adjust the horizontal linearity slug (B3), until the picture is symmetrical from left to right. Slight readjustment of B1 may be necessary to obtain optimum results.

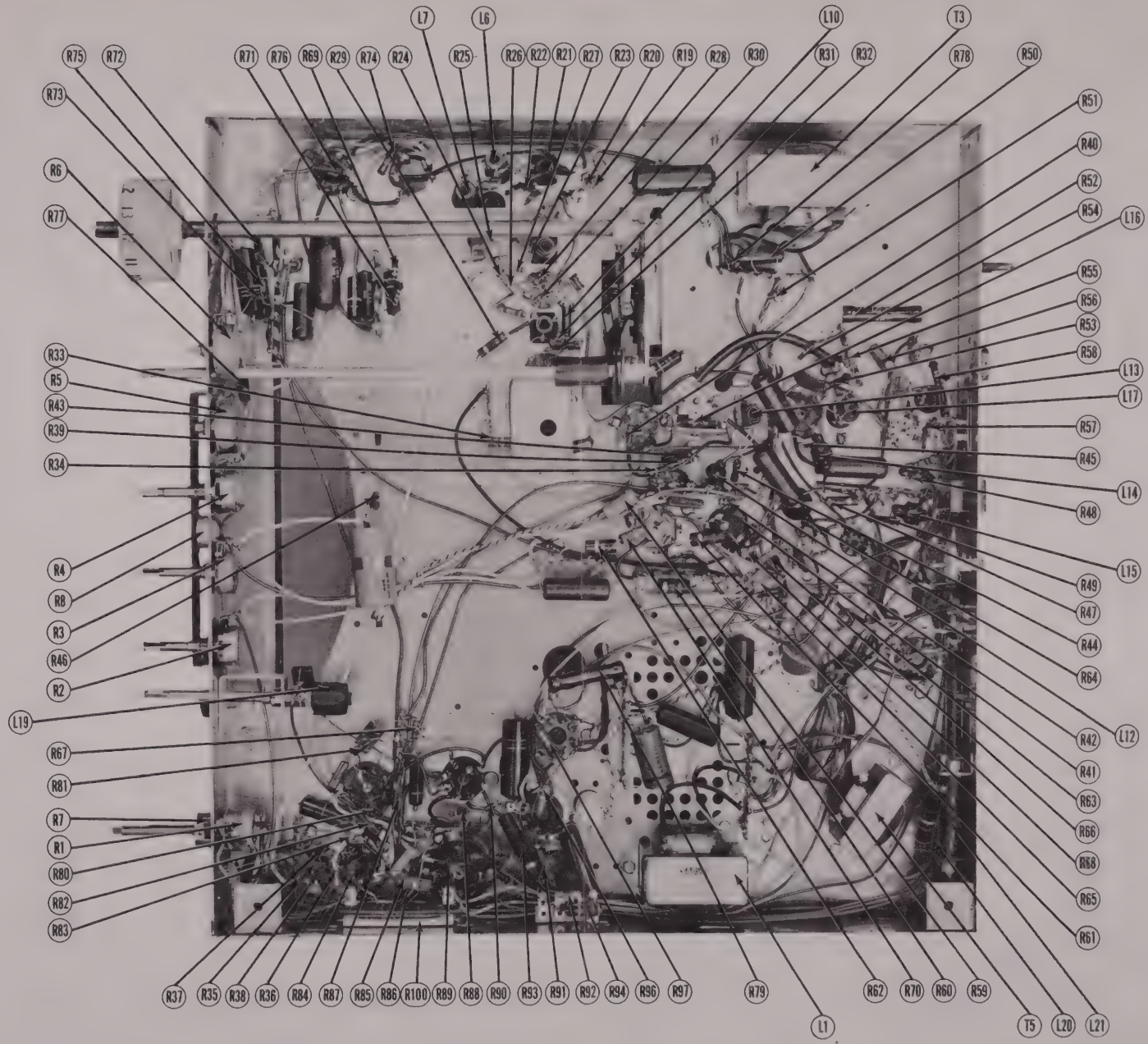
DISASSEMBLY INSTRUCTIONS

1. Remove seven push-on type control knobs.
2. Remove four wood screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove antenna terminal strip.
5. Disconnect speaker.
6. Remove four 7/16" hex head bolts from chassis. Remove chassis.
7. Remove two 5/16" hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.



FINE TUNING DRIVE CORD STRINGING



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6CB6	6CB6	6CK	
V2	Mixer	6CB6	6CB6	6CK	
V3	Oscillator	6AB4	6AB4	5CE	
V4	1st. Video IF Amp.	6CB6	6CB6	6CK	
V5	2nd. Video IF Amp.	6CB6	6CB6	6CK	
V6	3rd. Video IF Amp.	6CB6	6CB6	6CK	
V7	1st. Video Amp.	6CB6	6CB6	6CK	
V8	2nd. Video Amp.- 1st.Sound IF Amp. AGC Keying -Horiz. AFC	12AT7	12AT7	9A	
V9		6SN7GT	6SN7GT	8BD	
V10	Det.-AF Amp.	6BN6	6BN6	7DF	
V11	Audio Output	6BF5	6BF5	7BZ	
V12	Sync. Clipper	6BN6	6BN6	7DF	
V13	Vert. Amplifier- Vert. Oscillator	6BL7GT	6BL7GT	8BD	
V14	Horizontal Phase Discriminator	6AL5	6AL5	6BT	
V15	Horiz. Oscillator- Horiz. Discharge	6SN7GT	6SN7GT	8BD	
V16	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V17	Damper	6W4GT	6W4GT	4CG	
V18	HV Rectifier	1B3GT	1B3GT	3C	
V19	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: ZENITH PART No.	SYLVANIA PART No.	THOMAS PART No.	RMA BASE TYPE	NOTES
V20A	17BP4A	17BP4A	17BP4	12D	
B	17BP4	17BP4A	17BP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450		AFH882J		UPT44145		TVL-3785	▲ Filter
B	40	450							■ Filter
C	10	450							▲ Decoupling
C2A	20	400		AF44474A		UPT111145		TVL-4652	▲ Filter
B	10	350				BR202A			■ Audio Output Dec.
C	10	200							▲ Audio Output Screen
D	20	25							Audio Output Cathode
C3A	20	475		AF824X2A		UPT2150-V10		TVL-3817	▲ Vert. Amp. Dec. ■ Vert. Osc. Decoupling ▲ Vert. Amp. Cathode
B	10	475							
C	100	50							
C4	20	300		PRS450/20		BR2035A		TVA-1608	Vert. Amp. Cathode
C5	20	25		PRS150/20		BR202A		TVA-1410	Horiz. Sweep Coupling
C6	5		22-2050	SI5NP0	TCZ-4.7		NP0K-050		Fixed Trimmer
C7	1-3.5		22-2093		829-4				Variable Trimmer
C8	1-3.5		22-2093		829-4				Variable Trimmer
C9A	100								AGC Filter
B	100		27-160						RF Bypass
C	100								Filament Bypass
C10	630		27-155						RF Amp. Decoupling
C11	475		27-69						RF Bypass
C12	1-3.5		22-2093		829-4				Variable Trimmer
C13	470		22-6	BPD-00047	DD-471		GP2K-471	5GA-T47	Mixer Screen Decoupling
C14	470		22-6	BPD-00047	DD-471		GP2K-471	5GA-T47	Mixer Plate Decoupling
C15	1		22-2313				N750K-010		Fixed Trimmer
C16	2.5		22-2139						Osc. Coupling
C17	470		22-2143		TCN-470		N750-333-471		Osc. Filament
C18	4.5		22-2300				NP0K-4R5		Osc. Feedback
C19	12		22-1950				NO80-331-120		Osc. Grid Cap.
C20	1-9		22-2301						Variable Trimmer
C21	5.5		22-2314				N330K-5R5		Osc. Feedback
C22	470		22-2302		TCN-470		N750-333-471		IF Coupling
C23	6		22-2051				NP0K-060		IF Coupling
C24	6		22-2051				NP0K-060		IF Coupling
C25	5		22-2050	SI5NP0	TCZ-4.7		NP0K-050		IF Coupling
C26	1000		22-7	BPD-001	D6-102	1W5D1	801-001	5HK-D1	AGC Filter
C27	.47	200	22-2146	P288-47		GT2P5		2TM-P47	AGC Filter
C28	330		22-2309	SI330	D6-331		GP2K-331	5GA-T33	1st. Video IF Screen
C29	1000		22-7	BPD-001	DD-102	1W5D1	801-001	5HK-D1	RF Bypass
C30	1000		22-7	BPD-001	DD-102	1W5D1	801-001	5HK-D1	2nd. Video IF Grid
C31	470		22-2217	SI470	D6-471	5R5T5	GP2K-471	5GA-T47	2nd. Video IF Filament
C32	470		22-2217	SI470	D6-471	5R5T5	GP2K-471	5GA-T47	2nd. Video IF Decoupling
C33	560		22-2310	SI560	D6-561		GP2K-561		3rd. Video IF Decoupling
C34	470		22-2217	SI470	D6-471	5R5T5	GP2K-471	5GA-T47	3rd. Video IF Cathode
C35	.0033	600	22-2248	P688-0033	D6-332		GP2-333-332		Video Amp. Cathode
C36	27	500	22-2297	SI27	D6-271	5R5Q3	GP1K-270	MS-43	Video Coupling
C37	220		22-2321	SI220	D6-221	5R5T25	GP2K-221	5GA-T22	Fixed Trimmer
C38	.047	600	22-1844	P688-047	DF-503	PTE6S5		6TM-S47	Video Coupling
C39	.047	600	22-1844	P688-047	DF-503	PTE6S5		6TM-S47	Video Coupling
C40	.047	400	22-1775	P488-047	DF-503	PTE4S5		4TM-S47	Picture Tube Cathode
C41A	10000		22-2276	BPD-01	DD-3-202	ID3SI	821-01	5HK-SI	AGC Filter
B	10000			BPD-01		ID3SI	821-01	5HK-SI	Keyed AGC Cathode
C42	2000		22-8	BPD-003	DD-202	ID3SI	801-002	5HK-D2	Horiz. Sweep Coupling
C43	47		22-1876	SI47N 080			N080-333-470		Sound IF Coupling
C44	6		22-1889				N 080-331-060		Neutralizing Cap.
C45	10000		22-3	BPD-01	DD-103	ID3SI	821-01	5HK-SI	Audio Coupling
C46	10000		22-3	BPD-01	DD-103	ID3SI	821-01	5HK-SI	Det.-AF Amp. Screen
C47	10		22-1895				N150K-110		Fixed Trimmer
C48	10000		22-3	BPD-01	DD-103	ID3SI	821-01	5HK-SI	Audio Coupling
C49	.0047	600		P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Audio Output Plate

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C50	.047	600	22-1844	P688-047	DF-503	PTE6S5	GP2-333-472	6TM-S47	Sync. Coupling
C51	4000		22-4	BPD-004	D6-402	1D5D4	GP2-333-402		Sync. Clipper Screen
C52	.047	400	22-1775	P488-047	DF-503	PTE4S5		4TM-S47	Vert. Sync. Coupling
C53	.15	200	22-2166	P288-15				2TM-P15	Vert. Osc. Cathode
C54	.0012	600	22-1880	P688-0015	D6-122		GP2K-122	6TM-D15	Vert. Osc. Grid
C55	.015	600	22-2264	P688-015		PTE6SI5		6TM-S15	Vert. Discharge
C56	.1	600	22-1841	P688-1	DF-104	PTE6P1		6TM-P1	Vert. Sweep Coupling
C57	.001	600	22-2128	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Vert. Feedback
C58	.0022	600	22-1814	P688-0022	D6-222	PTE6D2	GP2-333-222	6TM-D22	Vert. Osc. Grid
C59	.0022	600	22-1845	P688-0022	D6-222	PTE6D2	GP2-333-222	6TM-D22	Vert. Sweep Coupling
C60	100	500	22-365	1468-0001	D6-101	5W5T1	GP1K-101	1FM-31	Horiz. Sync. Coupling
C61	130	500	22-2162	1469-00015					AFC Filter
C62	1000		22-2112	SII000	D6-102	1W5D1	GP2L-102	5HK-D1	AFC Filter
C63	.1	200	22-1777	P288-1	DF-104	PTE4P1		2TM-P1	AFC Filter
C64	.047	200	22-1778	P288-047	DF-503	PTE4S5		2TM-S47	AFC Cathode
C65	470	500	22-1138	1469-0005	D6-471	5R5T5	GP2K-471	MS-35	Horiz. Sync. Coupling
C66	.0022	600	22-1814	P688-0022	D6-222	PTE6D2	GP2-333-222	6TM-D22	Horiz. Sync. Coupling
C67	1000	500	22-2163	1464-001		1R5D1		MS-21	Fixed Trimmer
C68	1000		22-7	BPD-001	DD-102	1W5D1	801-001	5HK-D1	Horiz. Sweep Coupling
C69	680	500	22-2125	1469-0007	D6-681	2R5T7	GP2K-681	5GA-T68	Horiz. Discharge
C70	330		22-2309	SI330	D6-331		GP2K-331	5GA-T33	Horiz. Sweep Coupling
C71	.47	200	22-2146	P288-47		GT2P5		2TM-P47	Horiz. Output Cathode
C72	.047	400	22-1775	P488-047	DF-503	PTE4S5		4TM-S47	Horiz. Output Screen
C73	.0082	600	22-2327						Fixed Trimmer
C74	.0022	600	22-1814	P688-0022	D6-222	PTE6D2	GP2-333-222	6TM-D22	Horiz. Feedback
C75	.001	600	22-2128	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Horiz. Feedback
C76	.15	400	22-2261	P488-15				4TM-P15	Damper Filter
C77	.1	400	22-2061	P488-1		PTE4P1		4TM-P1	Damper Filter
C78	500	20000	22-1832	HV-20C	TV3-502				HV Filter
C79	1000		22-2112	SII000	D6-102	1W5D1	GP2L-102	5HK-D1	RF Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	500KΩ	½	63-2125	Q13-133	AG-60-Z	AN-60	Volume Control
B	Shaft		Not req.	Not req.	KSS-3	AK-4	Attach to R1A per instructions
C	Switch		Not req.	76-1	SWB	K-155	Attach to R1A per instructions
R2A	100KΩ	½	63-2126	Q11-128	AG-49-S	AN-40	Brightness Control
B	Shaft		Not req.	Not req.	KSS-3	AK-4	Attach to R2A per instructions
R3	2500Ω	½	63-2346				Contrast Control
R4A	200KΩ	½	63-2127	Q11-130	AG-52-S	B-46	Vert. Hold Control
B	Shaft		Not req.	Not req.	KSS-3	Not req.	Attach to R4A per instructions
R5A	2000Ω	½	63-2172	Q11-110	AM-11-S	AN-6	Vert. Linearity Control
B	Shaft		Not req.	RQ	FKS-1/4	AK-1	Attach to R5A per instructions
R6A	7.5Meg	½	63-2351	Q11-143		AN-98	Vert. Size Control
B	Shaft		Not req.	RQ		AK-1	Attach to R6A per instructions
R7	4000Ω	1	63-2159				AGC Delay Control - Wire Wound
R8	4000Ω	1	63-2159				Vert. Hold Range Control - Wire Wound
R9	500Ω	1	63-2050	W-500#	43-500#	VK-127	Buzz Control - Wire Wound

File Slot in Shaft

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE SPECIFIED
R10	100KΩ	½	63-1869		RF Amp. Grid
R11	6800Ω	½	63-1820	BTS-6800	RF Amp. Plate
R12	6800Ω	2	63-1571	BTB-6800	RF Amp. Decoupling
R13	3.3Meg	½	63-1933		Mixer Grid
R14	220KΩ	½	63-1883		Mixer Screen
R15	1000Ω	½	63-1785	BTS-1000	Decoupling
R16	2200Ω	½	63-1799	BTS-2200	Osc. Grid
R17	2200Ω	½	63-1799	BTS-2200	Osc. Cathode
R18	4700Ω	1	63-943	BTS-4700	Osc. Plate
R19	1000Ω 20%	½	63-1786	BTS-1000	AGC Network
R20	220KΩ 20%	½	63-1884	BTS-220K	AGC Network
R21	68Ω 20%	½	63-1737		AGC Network
R22	56Ω	½	63-1733		1st. Video IF Amp. Cathode
R23	470Ω 20%	½	63-1772	BTS-270	1st. Video IF Amp. Decoupling
R24	6800Ω 20%	½	63-1821	BTS-6800	Bias Network
R25	120KΩ	½	63-1873	BTS-120K	Voltage Divider
R26	120KΩ	½	63-1873	BTS-120K	Voltage Divider
R27	22KΩ	½	63-1841	BTS-22K	2nd. Video IF Transformer Shunt
R28	47Ω	½	63-1729		2nd. Video IF Amp. Cathode
R29	3300Ω	1	63-1974	BTA-3300	2nd. Video IF Amp. Decoupling
R30	22KΩ	½	63-1841	BTS-22K	3rd. Video IF Transformer Primary Shunt
R31	33KΩ	½	63-1848	BTS-33K	3rd. Video IF Transformer Secondary Shunt
R32	100Ω	½	63-1743	BTS-100	3rd. Video IF Amp. Cathode
R33	2700Ω	1	63-1573	BTA-2700	3rd. Video IF Amp. Decoupling
R34	100KΩ	½	63-1869	BTS-100K	AGC Network
R35	680KΩ 20%	½	63-1905	BTS-680K	AGC Network
R36	68KΩ	½	63-1862	BTS-68K	Voltage Divider
R37	3300Ω 20%	½	63-1807	BTS-3300	Keyed AGC Cathode
R38	220KΩ 20%	½	63-1884	BTS-220K	Keyed AGC Plate
R39	3300Ω	½	63-1806	BTS-3300	Keyed AGC Grid
R40	68Ω 20%	½	63-1737		1st. Video Amp. Cathode
R41	330Ω 5%	½	63-1763	BTS-330-5%	1st. Video Amp. Plate
R42	470Ω 5%	½	63-1770	BTS-470-5%	1st. Video Amp. Plate
R43	6200Ω 5%	2	63-1579		1st. Video Amp. Plate
R44	470Ω	½	63-1771	BTS-470	Video Peaking Coil Shunt
R45	470KΩ	½	63-1897	BTS-470K	2nd. Video Amp. Grid
R46	330Ω	½	63-1764	BTS-330	2nd. Video Amp. Cathode
R47	8200Ω 5%	1	63-2350	BTA-8200-5%	2nd. Video Amp. Plate
R48	27KΩ	½	63-1845	BTS-27K	Video Peaking Coil Shunt
R49	1.5Meg	½	63-1919	BTS-1.5Meg	Picture Tube Grid
R50	15KΩ 20%	½	63-1835	BTS-15K	Picture Tube Cathode
R51	220KΩ	½	63-1883	BTS-220K	Vert. Retrace Blanking Network
R52	1200Ω	10	63-2021	1 3/4A-1200	Voltage Divider - Wire Wound
R53	220KΩ	½	63-1883	BTS-220K	Sound IF Amp. Grid
R54	220KΩ	½	63-1883	BTS-220K	Sound IF Amp. Plate

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	IDENTIFICATION CODES
R55	33KΩ	½	63-1848	BTS-33K	Det. Grid
R56	6800Ω	2	63-1571	BTB-6800	Det. Screen
R57	680Ω	2	63-1778	BTB-680	Det. Screen
R58	330KΩ	½	63-1890	BTS-330K	AF Amp. Plate
R59	330Ω	1	63-1764	BTA-330	Output Cathode
R60	18KΩ	2	63-2364	BTB-18K	Output Screen
R61	1500Ω	2	63-2294	BTB-1500	Output Decoupling
R62	10KΩ	2	63-1198	BTB-10K	Voltage Divider
R63	10KΩ 20%	½	63-1827	BTS-10K	Damping
R64	1Meg	½	63-1911	BTS-1Meg	Sync. Clipper Grid
R65	15KΩ	1	63-1065	BTA-15K	Sync. Clipper Screen
R66	68KΩ	½	63-1862	BTS-68K	Sync. Clipper Plate
R67	100KΩ	½	63-1869	BTS-100K	Voltage Divider
R68	47KΩ	½	63-1856	BTS-47K	Integrator
R69	100KΩ	½	63-1869	BTS-100K	Vert. Feedback
R70	33KΩ	1	63-957	BTA-33K	Bias Network
R71	330KΩ	½	63-1890	BTS-330K	Vert. Osc. Grid
R72	10KΩ	½	63-1827	BTS-10K	Vert. Osc. Cathode
R73	3.3Meg 20%	½	63-1933	BTS-3.3Meg	Vert. Osc. Plate
R74	10KΩ	½	63-1827	BTS-10K	Vert. Osc. Decoupling
R75	47KΩ	½	63-1856	BTS-47K	Vert. Peaking
R76	3.3Meg	½	63-1933	BTS-3.3Meg	Vert. Amp. Grid
R77	1000Ω	1	63-965	BTA-1000	Vert. Amp. Cathode
R78	100KΩ	½	63-1869	BTS-100K	Vert. Output Transformer Shunt
R79	3300Ω	10	63-3121	1 3/4A-3500	Decoupling - Wire Wound
R80	1Meg	½	63-1911	BTS-1Meg	Horiz. Disc Diode Load
R81	1Meg	½	63-1911	BTS-1Meg	Horiz. Disc Diode Load
R82	1Meg	½	63-1911	BTS-1Meg	Horiz. AFC Filter
R83	100KΩ 20%	½	63-1870	BTS-100K	Horiz. AFC Filter
R84	680Ω	½	63-1778	BTS-680	Horiz. AFC Cathode
R85	100KΩ	1	63-2137	BTA-100K	Horiz. AFC Plate
R86	10KΩ 20%	2	63-1198	BTB-10K	Bias Network
R87	33KΩ 20%	½	63-1849	BTS-33K	Horiz. Osc. Grid
R88	47KΩ 20%	½	63-1856	BTS-47K	Horiz. Disc Grid
R89	150KΩ	½	63-1876	BTS-150K	Horiz. Disc Plate
R90	3300Ω	½	63-1807	BTS-3300	Horiz. Peaking
R91	100Ω	½	63-1744		Parasitic Suppressor
R92	470KΩ	½	63-1897	BTS-470K	Horiz. Output Grid
R93	100Ω	2	63-1973	BW-2-100	Horiz. Output Cathode - Wire Wound
R94	47Ω	1	63-970	BW-1-47	Horiz. Output Cathode
R95	10KΩ	20	63-2345	2D-10K	Horiz. Output Screen - Wire Wound
R96	68KΩ	1	63-1979	BTA-68K	Horiz. Feedback
R97	68KΩ	1	63-1979	BTA-68K	Horiz. Feedback
R98	2.2Ω	½	63-2114		HV Rectifier Filament - Wire Wound
R99	470KΩ	½	63-1897		HV Filter
R100	4000Ω	10	63-2342	1 3/4A-4000	Filter - Wire Wound

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC	640VCT	5VAC	12.6VCT	95-1277			
	② 1.95A	.270ADC	② 3A	② 5.2A				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	390Ω Tap 190Ω	3.7Ω Tap 1Ω	S-17939	A-8130			Horiz. Output Trans.
		SEC. 2 0Ω					
T3	610Ω	12Ω	95-1275	A-8112 ①	A-3036 ①	TSO-5 ①	Vert. Output Trans.
T4A	17Ω		95-1263	DY-7	MDF-70		Horiz. Deflection Coil
B	51Ω						Vert. Deflection Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T5	9KΩ	3.2Ω	680Ω	.5Ω	95-1274	A-3823	A-3020	RO-16	

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	REPLACEMENT DATA: ZENITH PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1A	PM	3.2Ω	49-696 ②	52524	52A1	② Used in models H2029R, H2030F, H2030R
B	PM	3.2Ω	49-649 ③	10J12	10A4A	③ Used in models H2041R, H2052R
	CONE DIA.	V. C. DIA.				
SP2A	5 1/4"	9/16"	ZC5093			
B	10"	9/16"	ZC10161			

PARTS LIST CONTINUED ON PAGE 15

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ↶)	ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.225A	97Ω	3 Henries	95-1280		C-2994 ④		

④ With one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	
L2	Ant. Coil			S-17173		
L3	Conv. Plate Coil			S-17970		
L4	RF Choke			S-18020		
L5	Adj. Video Trap	0Ω		S-18211		
L6	Adj. Sound Trap	0Ω		S-18210		
L7	Associated Sound Trap	0Ω		S-18209		
L8	1st Video IF	.1Ω		S-17906		
L9	2nd Video IF	.1Ω	.1Ω	S-17907		
L10	Fil. Choke	.1Ω		S-16984		
L11	3rd Video IF	.1Ω	.1Ω	S-17908		
L12	Peaking	4Ω		S-17953		
L13	4.5MC Trap	.2Ω		S-17956		
L14	Peaking	12Ω		S-17958		
L15	Peaking	9Ω		S-17957		
L16	1st Sound IF	1.1Ω	1.1Ω	S-18157		
L17	2nd Sound IF	5.5Ω		S-17954		Taps .6Ω and 1.1Ω
L18	Quadrature Coil	5.1Ω		S-17955		
L19	Horiz. Osc.	120Ω		S-17114		Tap 80Ω
L20	Horiz. Lin.	11Ω		S-17176		
L21	Width Coil	4.8		S-17949		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			ZENITH PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG Slo-Blo	175MA	136-21	83-1883	313.175	357001	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					ZENITH PART No.		
M2	Bayonet	6-8	.15	Brown	100-67		Type number 47.

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	RF Tuner	S-17947	
M4	Video Det. Ass.	S-17909	Consists of the Following: 4th Video IF Part No. S-17913, Capacitor 7MMF Part No. 22-1874, Resistor 10KΩ Part No. 63-1827, Resistor 3900Ω Part No. 63-1810, Peaking Coil Part No. S-17912, Peaking Coil Part No. S-17911, Choke Coil Part No. S-15128, Diode Crystal Part No. 103-1.
M5	Integrator Unit	87-1	
M6	Focus Magnet		
M7	Ion Trap		
	Trimmer	22-2326	10-50MMF 1st Sound IF
	Trimmer	22-2291	50-300MMF Horiz. Drive
	Channel Strip	S-17982	Channel #2
	Channel Strip	S-17983	Channel #3
	Channel Strip	S-17984	Channel #4
	Channel Strip	S-17985	Channel #5
	Channel Strip	S-17986	Channel #6
	Channel Strip	S-17987	Channel #7
	Channel Strip	S-17988	Channel #8
	Channel Strip	S-17989	Channel #9
	Channel Strip	S-17990	Channel #10
	Channel Strip	S-17991	Channel #11
	Channel Strip	S-17992	Channel #12
	Channel Strip	S-17993	Channel #13